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THE

CALIFORNIA TEACHER;

DEVOTED TO THE

EDUCATIONAL INTERESTS OF CALIFORNIA.

OFFICIAL ORGAN OF THE

DEPARTMENT OF PUBLIC INSTRUCTION.

VOLUME X.

JULY, 1872, TO JUNE, 1873.

SACRAMENTO:
HENRY N. BOLANDER, PUBLISHER.
1873.

Managing Editors:

Henry N. Bolander, John Swett.

Contributing Editors:

GEO. F. BAKER, W. J. G. WILLIAMS,

MISS M. F. AUSTIN, MISS CLARA G. DOLLIVER.

133969

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THE

CALIFORNIA TEACHER.

JULY, 1872.

VOL. X. SACRAMENTO. No. 1.

EXTRA-LEGAL QUALIFICATIONS OF TEACHERS.

Address delivered at the Graduation Exercises of the State Normal School of California, San Jose, March 28th, 1872.

BY CHARLES G. AMES.

I DESIRE to offer some remarks on what may be called "Extra-Legal Qualifications of Teachers"—qualifications which the law does not and cannot prescribe—qualifications after which no examining board inquires, and yet without which the highest scholarship and purest moral purpose cannot make a successful teacher. I am sure these veteran instructors, among whom I am honored to stand, will applaud me with their very heart-throbs for declaring that the completest outfit of knowledge, and the most thorough preparatory training, are not half so important as certain *personal qualities in the school-room.*

For what is the ultimate and only worthy object of all education? Completeness of life and character, is the answer we are all learning to give with increasing clearness and emphasis. Surely this supremely excellent result is not gained—and may

even be hindered—by merely helping the pupil to acquire and exhibit knowledge. The spirit which accompanies and presides over the processes of schooling is a thousand-fold more important than the processes themselves.

Let us speak, then, with conscious inadequacy, but not without earnest conviction, of some of those qualifications which even a first grade certificate does not call for, but which more than all others ought to report their value in the future career of those who are now to consecrate themselves to this sacred profession.

1. *Solid contents of personal character*—breadth, as well as length and depth—the weight which belongs to wisdom and worth, and which overcomes centrifugal tendencies, and which, by pure force of attraction, compels smaller bodies to find their true orbit about itself. The respect and confidence of pupils cannot be won and held by any assumption of false dignity, or any sham seriousness of manner: behind deportment there must be a solid, genuine personality. "Brother, said a young man in Massachusetts, "up in our pulpit there is nothing but a noise." Old Mrs. Harkness used to say that when Mr. Ingley entered the room, it always seemed just as empty as before. Happy for our growing children, if the teacher always makes them feel that somebody is there! In nine cases out of ten, where teachers fail, is it not because pupils meet them and see them as functionaries rather than as persons? How highly would sensible parents and school officers prize the services of one who could not only drill the young people in reading, grammar and arithmetic, but who should be competent also to the higher relations of guide, example and friend!

In a large sense the teacher occupies the place of a parent; in thousands of cases, to children who have no adequate parental atmosphere, care or guidance at home. Does this make school-work doubly difficult? But it makes it at the same time doubly important, doubly necessary, doubly honorable.

The teacher is in the employ of the State—its officer and agent for a purpose too little considered. Through this chosen agent—whom in the case of a Normal student the State has helped to prepare—the State comes forward to reinforce the wise parent and to rescue the children of the unwise one. For

as children are born to be members of civil society—born to share its privileges and to bear its burdens—we may all accept the theory of Dr. Draper, that "the State has rights in a child as well as its parents, and that it may insist on education; conversely, also, that every child has a claim on the Government for good instruction."

The teacher, therefore, represents the wisdom of the State, seeking to put itself in connection with the mind of the child; represents the instinctive effort of society to nourish and develop this new member; while at the same time he is the appointed guardian and trustee of the child's right to good instruction, which is quite as natural and unalienable as its right to air and food. A great author says: "The highest functionaries of the State are the nurse and the school master."

Whether the law requires it or not, whether school committees ask after it or not, the public need and the children's right is that every teacher shall have enough breadth of mind to comprehend the nature of the work, and enough personal power and moral weight to mold the pupil's character accordingly.

This personal quality of the teacher would go far to furnish a solution of the most troublesome problem of modern education. Let us take this lesson from the School Reports of Prussia: The question there was—as it is here—How shall the children be taught morality in schools? Some said, "Let them have it by correction and discipline: when they do wrong, let them suffer." But it was found that punishments tend to harden, degrade and discourage. Then it was said, "Let them learn morality by precept; let them learn maxims and study books which inculcate virtue." But this alone wouldn't work; for moral sentiments do not dwell in the head. The children learned the good precepts, but failed to feel their force. Then it was said, "Let the teachers be selected from those who love children, and whom children love, and from those who by pure and cheerful *influence* can win young hearts to goodness." This worked better. The report says the only effectual method has been to keep the children in daily contact with consistent and noble-minded teachers. But let me come closer to the life of the school room.

2. Besides all qualifications required by law, the teacher needs

Adaptability — aptness for the work—a flexible sense of the ever-changing situation—quickness of insight and outsight—something of Divine Providence incarnate, or that sort of local omniscience and omnipresence which comes of being alive and wide-awake all over and all through.

Children are not alike; nor is it the teacher's business to make them alike, but to supply healthful conditions for the development of their differing natures. The law cannot take notice of this unlikeness; the teacher must. But, alas! wisdom and folly have put their heads together and struck out a kind of average method which the teacher is expected to apply to all sorts of minds and all classes of temperaments. School work becomes mechanical, stiff, soulless—the turning of a crank which moves a machine for crushing all the young faculties into conformity. Little room is allowed for the play of those natural and vital forces in the pupil on which we should chiefly depend; but artificial methods, twice as difficult and not half so useful, are substituted, till tormentor and victim are dragged to the point of exhaustion.

Formalism is as fatal in education as in religion. It stiffles nature with routine, and makes the relation of pupil and teacher a comedy of errors. Let me plead, therefore, that the teacher may have more freedom to adapt his methods to the varying need; that he may meet his young disciples where they are, as individuals, and help them forward and upward. Thus, also, will the diversity of gifts among teachers find fair opportunity, and turn to larger service. For every true teacher should be able to offer to the school something more and better than scholastic attainments. He should have a right to say: "I am come that you might have life, and that you might have it more abundantly." If any teacher has no life to give, the first and best thing is to seek it at headquarters; or, failing to find it, give place to a live successor.

3. How should an examining board learn anything about a candidate's *capacity for governing?* Yet, if there is no government, there is no school. But self-government is the noblest form; and the best teacher is the one whose authority, while most real, is least apparent; whose presence and influence waken right sentiments; whose noble behavior inspires noble behavior.

To establish and preserve order, and at the same time to make order hateful and hated, is the tyrant's kind of success. The arbitrary law of mere carnal authority which grimly says, "Here are the rules of the school; obey, or take the consequences," is doubtless as high up as some teachers are competent to come; but it is horribly degrading to ruler and ruled. There is a law of spiritual life which can make us free from this law of sin and death, of switches and cudgels. It is the supremacy of love, whose mild dominion, like that of the sun in heaven, calls forth every form of order and beauty, when storm, and tempest, and fire have spent their fury in vain.

The first pre-requisite to a good government in the school room is an agreeable, wholesome and well-tempered moral climate, friendly to the growth of good-will and honorable relations, between pupil and pupil as well as between pupil and teacher. The sun in heaven also regulates the movements of the planets in harmony with each other, as well as around itself. Be you that central sun in your solar system of boys and girls. Arise and shine, and be sure you give out warmth as well as light. There will be far less trouble, even with those bad boys who are very often the *very raw* material of good men, when they habitually know their teacher as a personal friend, to whom they must look up as to a superior, not only in authority and rank, but also in wisdom and kindness.

Government includes the three functions—legislative, judicial, and executive. It is easy to lay down the law; not so easy to enforce it; hardest of all to apply it wisely and fairly. The judicial faculty is of slow growth and rarely comes to perfection. The unjust judge is in every school room and family, by times. To be always perfectly reasonable and passionless in dealing with offenders and suspected offenders, to exercise that gift of moral perspective which sees little faults as little, and some not at all—I can recall not one teacher who came up to this godlike standard, though I could gratefully name some who approached it.

The civil law, as construed, permits both parent and teacher to maintain authority by the use of the rod; and I admit it is better so than to let rebellion triumph over rational law and order; but I never whipped a child without a secret shame at

my own clumsy incapacity for wielding the less brutal weapons of the spirit. As a rule, we are likely to get what we give: the temper of the subject will respond to the temper of the master.

In the State Normal School at Albany was a young lady who gave the faculty a deal of trouble, so that she was always under the shadow of threatened expulsion; but there was no more obedient or honorable pupil than she when under the immediate control of a particular professor. This was her own explanation of the difference: "The other teachers always spoke to me of my faults as if they were mad, and that made *me* mad; he spoke to me as if he were sorry, and that made *me* sorry!"

In this nineteenth century of Christian enlightenment, there is so much faith in the power of wise kindness that a part of the people in every district which is not quite benighted, will be shocked by a resort to violence, and their estimate of the teacher's work as a whole will be deservedly advanced by an administration made successful through pure moral power over the pupils. Nor will the modern knight of the birch be always so charitably judged as was a Michigan school master, who set the village in an uproar by one over-dose of discipline. An investigating committee reported that he was not guilty of wilful cruelty, but was misled by an undue estimate of the thickness of the boy's pantaloons.

4. The teacher needs to be largely endowed with the *Faculty of Encouragement*. We all want to hear the preacher who can interpret the Gospel as Heaven's word of infinite encouragement to man; for "we are saved by hope." There is no movement without motive. You and I do nothing without mental stimulent. Courage is a thing of the heart, as its etymology testifies. (*Cor*, the heart, and *ago*, to act.) It implies soundness, life and power at the *core*. Hence to be discouraged is to be disheartened. What can a child do—nay, what can we expect of a man—with no heart for his work? Paul says to fathers, "Provoke not your children to anger, lest they be discouraged"—as though discouragement were the one most damaging disaster. How shall the engine work if the fires go out? To fire the heart of the pupil is the sure way to set in motion all the machinery of the head. When all tasks are done cheerily, the best scholarship comes.

But this implies a heart in the teacher. How shall he kindle others who has no spark in himself? Remember the words of Pestalozzi: "Faith and love are the true foundations of education."

The most successful process of mining is that which draws most gold from a ton of reluctant rock. If one ton will assay two thousand dollars while another ton will yield but fifty cents, modern art forbids the miner to throw away the poorer ore as worthless. Children differ quite as much as samples of mountain quartz. There is the transparent genius which is like free gold in the nugget; and there are all degrees of alloy. But gold is gold, and mind is mind; and all the processes of education look toward liberating it from dross. The teacher's business is not only to get the best out of the best, but also to get the best out of the worst. Never enter a school room, never lay hand on this sacred material of mind, unless you have faith in the noble possibilities of human nature.

In most schools the intellectual differences of children range all the way from genius down to the neighborhood of idiocy. The geniuses hardly need the teacher; but he must give himself with generous patience to the ediot, the semi-ediot, the demi-semi idiot, and the hemi-demi-semi-idiot, not forgetting that his own mental light may be partially obscured by the same clouds.

Both in Europe and in America successful Idiot Schools have been founded; institutions for the reclamation of these unpromising swamp lands of humanity—for arousing the torpid faculties of downright, natural-born fools, incapable even of feeding themselves, like arrested infants. The first point to be made is to overcome the inertia—to set in motion the sluggish wheels of the idiot mind. At every step the one simple rule for awaking and leading forth the faculties of these unfortunates, and preparing them to become self guiding, self-supporting men and women, is, ENCOURAGE! ENCOURAGE!—as the sunshine encourages the frost-chilled buds of Spring.

Nothing is so encouraging as the intellectual sympathy of a supreme being. How persistently the children exact our attention to the trifles which are to their minds so many newly discovered wonders! "Oh, mamma, see this stick. Oh, papa, see that dog! Oh, aunty, there's a flower!" Within reasonable limits this

craving must be met and honored. The need of intellectual Sympathy is as real as the need for bread and butter.

The teacher should therefore be a student of human nature, diligently seeking to comprehend the ignorance, the mental blindness, the limitations and the slow-growing powers of those with whom he deals, so that from his loftier position he may reach down and offer a helping hand in the moment of need; or a cheering word, when it is better that the strugglers help themselves.

5. Another qualification required in the teacher by a higher law than that of the State is *Good Manners:* a certain outshining of culture, taste, and well rounded wholeness which shall give the children a hint of some finer qualities and nobler standard of life than many of them will even see at home. It is not their fault that so many of them bring to the school such boorish, rough, coarse, half-animal manners. In many cases, through all their early years, they will hardly meet with anything like good society, true politeness or nobleness of soul, unless supplied to them in the atmosphere of the school room. Their improvement is not to come from being lectured and hectored for their own rude ways, of which they may be as innocently unconscious as of the shape of their noses; it is rather to come from being habitually treated with that respect which inspires self-respect; from being recognized as prospective ladies and gentlemen, whether they deserve it or not. If there is a tendency in our country to bring us all down to one low level of vulgarity, to elevate incivility into a national habit, and to decorate all that is unwashed, unkempt and slatterly with the name of "republican simplicity," all the more diligently should this tendency be resisted by those who are charged with the education of American youth.

6. *A high standard of principle, especially in the commonest things.* It is possible that, as a people, we Americans have not half realized the moral value of mental accuracy and thoroughness, nor the immense evils—public as well as private—of mental slovenliness, superficial knowledge and conceited smartness. In attempting to diffuse education, we have spread it out too thin.

The national temperament inclines to haste rather than to

thoroughness; to sensation rather than to sense. The over-proud and over-praised spirit of the age says, "What can't be done in a hurry, or by machinery, let it go undone"—a maxim which might easily be the ending of civilization itself. So there is a growing impatience and contempt of those processes of application by which mind is well disciplined and character solidly built. Just now you will be asked to commit a crime, *viz:* to cram the memory of your pupils at the expense of their understanding; to pass them so rapidly over an extended programme of studies that at the end of the course they will have missed both knowledge and discipline. Occupying positions in which you might render a magnificent service to the country, by helping to clarify the intellect, compact the character and invigorate the mental life of the rising generation, you will be asked to darken, dissipate and weaken all by doing everything so hurridly as to do nothing well; to multiply impressions on the pupil's brain in such swift succession that each impression will wipe out the preceding, so that, at the end, there will be only an exhausted brain, followed by disgust and aversion to close thinking, yet accompanied by a conceit of wisdom!

What is the remedy? Resist this devil and he will flee. The evil is to be remedied in the school room by holding every recitation, every performance and every performer to the common sense principle that what is worth doing at all is worth doing well; by cross examining, to make sure that the pupil understands every lesson, and does not merely chatter words like a parrot; by refusing all promotion, except for actual attainment: and so breaking up the miserable habit of skimming and skipping, or thoughtless memorizing, which so often passes for study.

One fact ought to startle us into a discovery of the superficial scholarship produced by the present methods: so large a proportion of the older pupils are unacquainted with their own mother tongue. Surely the better class of teachers would never willingly turn loose upon a defenseless community crowds of young men and women who, having passed through the schools, come out only to mangle and murder the Republic's English by habitual mispronunciation of words in common use. Not that it is chiefly important to *seem* right, but that it is important to

be right; and these surface disorders of speech are symptoms of the inward disorder of inaccurate and careless thinking—the kind of thinking which is a fountain of troubled waters for the land and for our life.

6. One other qualification, not called for by the law, and not likely to be urged upon you by your employers, is yet necessary alike to your usefulness and your safety, viz: the *Habit of Self-Protection*. Don't over-do. There is a limit to your strength; don't spend beyond the income. There is a limit to your responsibility; don't worry. Do your whole duty, and sing a song. Don't waste any time or strength in "sitting on eggs that are not chickenable." Pull while you are in harness, but refuse to let it chafe you. For the scholar's own sake, throw it off your mind when you are out of it. Be a teacher not one minute after you lock the door and put the key in your pocket. Lift up your eyes to the hills; help yourself to the earth and sky; go a fishing; collect an herbarium; play at geology; chase butterflies and hunt bugs; or mount a horse and so get above the world. Read if you will, but beware of every book which seduces your mind back to the work, or forward to it. If you would be fresh and elastic next morning, don't carry the school to bed with you. Success depends on good nature; good nature on digestion; digestion on an unwearied brain, which requires regular and plentiful sleep. All dyspeptics are so far insane. Don't let even one per cent of yourself go crazy. And with all precautions your nervous system will be so tired at the end of the term that you will join in a fellow teacher's benediction: "Blessed be the man who invented vacations!"

You will need also to be fortified against the injustice of patrons and critics. Not that any of us may presume ourselves perfect; not that any of us can afford to miss the help of considerate critisism from our fellows. It is good to learn one's faults, even from an enemy. But be sure of this: you will sometimes be stupidly praised, and sometimes quite as stupidly blamed. Go on with the business, and let them rave!

Teachers are not above the need of encouragement; they are but children a little further grown. Let this be their encouragement: they are set to the most honorable task of the universe, the task of preparing citizens for earth and heaven.

Julia Ward Howe says: "We want a world peopled with intelligent and faithful men and women." Is there any nobler office than to contribute to the increase of intelligence and faithfulness!

Amid the inevitable trials, the multiplying annoyances, the monotonous routine, the unappreciated and unobserved fidelities of your profession, look not too much to its stinted outward rewards; consider less what you can get than what you can give; and rejoice in the secresy of your own souls that you are fellow-workers with all who, in any department of service, have wrought for the highest interests of mankind. You are beckoned to share the toils and honors of the world's prophets, poets, artists and Messiahs, for they also were of the glorious company of teachers.

There are other pursuits which make more show and noise; none whose influence may be more gracious or enduring. The brazen trump of the politician and the clarion blast of the warrior, pour out a boisterous peal and win the cheap applause of the hour; be content that the humbler music of your life sings itself into eternity. No notes are immortal save such as transmit themselves in the world of mind, for these sound on and on, when all the echoes of merely outward voices are hushed to silence. Though sweeter than Æolian harp, or far-spreading as bugle notes—

> ——"they die on rich sky,
> They faint on hill, and field and river;
> *Your* echoes roll from soul to soul,
> And grow forever and forever."

THE SCIENCE PRIMERS.*

These little books illustrate an imperfectly accepted truth, that systematic elementary teaching is a late and not an early product of educational energy. The best teachers of our schools have discovered the fallacy latent in our ancient belief that the ablest men are required to teach the oldest boys, and have in one or two famous cases acted on their discovery. It is easy

*SCIENCE PRIMERS: *Chemistry*, by PROF. ROSCOE; *Physics*, by PROF. BALFOUR STEWART.

for a young man fresh from University honors to pour his knowledge into the minds which have been well prepared, and which approach more or less to the level of his own; but to teach a class of little boys, to realize their difficulties and to appreciate their ignorance, to understand the perplexity which oppresses them in the presence of statements long since axiomatic to ourselves, requires a mature and versatile intelligence—a mind which can communicate childish knowledge as readily and as joyously as it solves recondite problems; a combination of rare gifts with long and conscientious training.

And thus it is that zeal for scientific teaching and the gathered scientific experience of the last fifteen years have only issued now in the books which form the subject of our notice. Scientific class-books hitherto have been either too difficult or too easy. They have been unavailable for beginners without the intervention of a practical teacher; or in their effort to be popular and simple they have abdicated half their value as instruments of educational discipline. In these books both extremes are avoided. Every stage of their teaching is based upon experiment; no law is enunciated till it has been proved. From first to last the student finds himself in immediate contact with nature. His empirical knowledge of external things is systematized; simple everyday phenomena reveal to him their principles and rationale; he walks forth with a new eye to discern the meaning and the beauty of familiar sights and sounds, and with a mind upon the stretch for fresh discoveries. And, on the other hand, no previous training is essential to the teacher who adopts them as his guide. Any man, ignorant even of the first principles of chemistry and physics, yet fairly dexterous and intelligent, who will patiently master these books, and try each experiment for himself, is in a position to transmit their contents successfully and clearly. Boards, deterred as yet from including science in their course of instruction through lack of teachers and of text-books, will find their difficulty removed.

The names appended to the books guarantee their scientific accuracy, and their embodiment of the latest knowledge. We tender the authors our hearty thanks for work which marks a stage in the advance of scientific education. Its lingering progress hitherto has been owing to the want, not of zealous

champions, but of united action. The labors of its advocates are now beginning to converge. The leaders of science and the leaders of education are drawing close together, on the one side eager to impart, on the other ready to receive, advice and guidance. By the publication of these books the most serious of the obstacles which have kept them separate is removed.—*Nature.*

C.S.L.

KINDERGARTEN.

Written for the CALIFORNIA TEACHER *by John Kraus, Washington, D. C., office of the U. S. Commissioner of Education.*

I have seen it frequently stated, in correspondence from Germany of American friends of Kindergarten, that Frœbel's system for the first time had received a searching examination by the Congress of German Philosophers that met at Frankfort-on-the-Main in September, 1869. This is a mistake. Such examinations have been made by the annual teachers' meetings for the last ten years. The *Ausburger Allgemeine Zeitung*, in speaking about the Philosophers' Congress, properly says: that its aim is the only basis of all rightful national education—nothing less than which has been the aim of all the educators of our time, such as Comenius, Pestalozzi, Disterweg, Frœbel; and so far as the general convention of German teachers build on the foundations these men have laid, they work for the same ends as the Philosophers' Congress. Frœbel's system received a searching examination for the first time at the Annual General Assembly of German teachers, held at Gera in 1862, when the late Dr. Schmidt of Kothen, delivered an elaborate and eloquent lecture in favor of *Kindergarten*, which was well received. But he met also with some tolerably firm opposition. The question was asked: "Are we to say to mothers quite unconditionally, 'By all means send your children to the *Kindergarten*;' or, 'When you cannot have your children besides yourselves, then send them to the *Kindergarten?*'" To this Dr. Lange, of Hamburg, one of the most excellent pedagogues in Germany, replied

that he believed mothers would be guided by the circumstances in which they are placed. When he himself lived, not as he now did, in a suburb, but in a city, and occupied rooms on a flat, his children had no play-ground, and this occasioned constant annoyance. His wife (Mrs. Lange is, by the way, the daughter of the best *Kindergartner*, besides Frœbel, in Germany, namely, of Wilhelm Middendorff, the most intimate friend of Frœbel,) could not control them. "What shall I do?" He then told her to send the children to the *Kindergarten*. Besides mothers situated as his wife at that time, there was a numerous class of ladies moving in fashionable life, who had neither the will nor allowed themselves the time to attend to the training of their children. On the whole, he would say to *most* mothers: "Send your children to the *Kindergarten!*" Did the opponents of the system know of mothers in any position of life whatever, where help of some sort in taking charge of the children was not necessary? Director Kaiser of Vienna, who led the opposition party in the discussion, said: "It seemed to be admitted in Dr. Lange's explanation that *Kindergarten* were institutions of a merely supplementary nature. The mother was to train the child; this was the duty devolved upon her by the Creator, and the *Kindergarten* were to supply what the mother could not give. The address which had been delivered by Dr. Schmidt, was announced under the title "Kindergarten and the Mission of Women." These two things he could not combine. He had a high conception of the functions of woman as the trainer of the child in the parental dwelling; and it was his conviction that if the child were withdrawn from the eye of the mother, however high might be the excellence of the hands into which it might fall, a fundamental deficiency would arise—*that tie of the heart that ought to exist between parent and child would be loosened.* Mothers often cannot train, admitted; but what people cannot do they ought to learn. How were they to learn if they sent their children to the *Kindergarten?* Why, the upshot must be that the trainer in the *Kindergarten*—not the mother—would possess the heart of the child. The public training of young children he held to be particularly hazardous in the case of girls. Where a mother could say, "I have never let my girl from my side till she was ten or twelve years old," in such a case the child would

preserve a moral delicacy, a simplicity, an innocence, which the training among a multitude could never impart. Seminar-Director Scholz (of the Teachers' Seminary) of Breslau—said that Frœbel had supplied in the *Kindergarten* what Pestalozzi had failed to furnish. Not every mother was in a position properly to train her children. Frœbel had supplied them with the means of doing so. A child must have occupation; but a mother had her general household duties, and could not duly devote herself to her child. It surely, then, would not be superfluous if she brought a so-called *Kindergartnerin* (trained in the *Kindergarten*) into the house to aid her. It was not necessary that she should send her child from home to find occupation. Many a one came—sagacious people, too—physicians particularly, and said: "There is too much art, too much elaborate ingenuity, in these *Kindergarten;* a child's activity should be free; it should not be *taught* how to play." But, in point of fact, Frœbel had gone in the track of nature, and had asked: "With what does a child like to play?" and then had selected his means of employing children accordingly. Space does not permit to follow the discussion any further. Suffice it to say that the merits and demerits of the system were set forth by several of the most distinguished representatives of national education. There was also a great number of ladies in the public audience, who became convinced that the *Kindergarten* system, far from depriving the female sex of any influence in education, expressly secures infant training to the care of educated females, mothers of course included. In passing I will but mention that the *Kindergarten* question has been on the list of discussion at every Annual General Teachers' Convention. So in 1866 at Mannheim; 1867 at Hildesheim; 1868 at Hesse-Kassel; 1869 at Berlin; and 1870 at Vienna. In Vienna even two special sessions were devoted to the *Kindergarten.*

I should not forget to mention here that the twentieth Annual General German Teachers' Assembly will be held at Hamburg during the week of Pentecost, 1871, from 21st to 23d of May, on which occasion also the pro and con of Frœbel's system will be discussed with genuine German profundity. The American friends of the *Kindergarten* who intend to visit Germany next year should not lose the precious opportunity to attend

this Assembly. I will further call their attention to a society which recently has been formed in Dresden, under the name of "Allgemeiner Erziehungs Verein" (General Educational Union), embracing members from all parts of Germany, and even of Holland, England and America. The society declares the following to be its fundamental principles :

1. The thorough improvement of our educational system, called for at the present time, can be obtained only by beginning with the very beginning of the life of the individual.

2. Education should assist, never disturb, a free development of the individual, in accordance with human nature.

3. The general aim of all education is to educate morally free religious and practically able men and women.

4. The present time requires particularly that education should tend to formation of character, to develop power to will and to do, and to lead the soul to the beautiful, ideal and sublime.

5. The society acknowledges in Frœbel's system of education the safest foundation for the early education of children, and finds in it leading features for all degrees of higher educatio[illegible]

6. The society deems it particularly necessary that the mind, in its development, should be led to a knowledge of its own being, as different from the material world which surrounds it.

The aims of this society are :

I. *To make education and its improvement a common ca[illegible] of the people.*

II. *Means to accomplish this aim.*

III. Formation of branch societies in city, town, and village, whose object it is to establish institutions for the better education of females, with a special view to their general educative talent ; to introduce improvements in educational institutions for the furtherance of the bodily and mental health of the pupils ; to multiply *Kindergarten* (particularly *Volkskindergarten*), and unite them organically with the public schools, and to assist in publication and distribution of juvenile books and papers, and enlargement of popular libraries. By training of male and female teachers in a *Normal School*, conducted according to the principles of the society, by publication of a paper promulgating the principles of the society in a popular way, a supplement of

which would be distributed gratuitously to mothers of the working classes, for the purpose of teaching them the general principles of hygiene and education, and finally by lectures on subjects of education.

To further the aforesaid aims, it has been proposed last year, by a number of sympathizing minds, to call a universal Educational Convention, with the participation of women, which should keep in view the improvement of family education and the preparation of the female sex for its educational calling. All those who favor this call are requested to testify their sympathy to one of the Provisional Committee. For this purpose this call has been sent to the writer of these lines, in order to publish it also in this country.

GRADING OF SCHOOLS.

The feasibility of adopting a graded course of study in the ungraded schools of country districts has been earnestly advocated by a few practical teachers, and the plan has been tried with success in several districts; but, for some reason, neither argument nor experiment has made much impression upon the great majority of the teachers and school officers most directly interested in the improvement of country schools. But few articles on the subject have appeared in the educational journals, and only two or three, so far as we have observed, have editorially commended the plan. We expected that the system would be first adopted and tested in districts favored with county or local supervision, but county superintendents generally seem indisposed to give it a trial. Why is this? If it be practicable to divide a country school into from five to eight regular classes, and to advance these classes over a systematic course of study, with a definite standard of promotion, the adoption of such a system would be a great improvement upon the present order of things. Our country schools are now broken into fragments of classes, and the pupils are, as a rule, studying branches as they or their parents may deem best. There is an absence of all system in their advancement and progress, and, as a consequence, the great majority of the pupils are in books beyond their comprehension. The desire of children to be in the highest classes and books results in too rapid advancement. The majority of pupils trying to read in the fourth reader, ought to be in the second. This folly also results in the use of "higher" arithmetics and "advanced" geographies, which have no place in country schools. This evil is lamented by all intelligent teachers, but few are able, alone and unaided, to correct it. What is needed is some systematic classification. We hope that this subject will soon receive the attention it deserves.—*National Teacher.*

DEPARTMENT OF PUBLIC INSTRUCTION.

SALUTATORY.

With this number the present State Superintendent, assisted by the corps of editors elected at the last meeting of the California State Educational Society, assumes the control of the CALIFORNIA TEACHER. There is no need of a long preamble of what we are going to do. We shall endeavor to conduct the journal in a spirit of fairness and candor. We purpose to speak fairly on all educational questions. Our *ideal* of a school journal is, not a musb of concessions to everybody, not a mass of platitudes on education, abstract and meaningless; but rather a publication that shall dodge no important issue; that shall dare to criticize; that shall not fear to offend; that shall look to the *advanced guard* of education instead of the stragglers that bring up the rear.

TO DISTRICT CLERKS AND SUBSCRIBERS.—For the last six months school-officers and subscribers have frequently complained to the State Superintendent about not receiving the TEACHER. As the TEACHER was still published by Messrs. O. P. & A. L. FITZGERALD, we have referred to them all such complaints. Only with this number begins our responsibilities as publishers. District Clerks will please bear in mind that unless they send notice of their appointment and post office address to their respective County Superintendents, we will be unable to mail the TEACHER. Our lists of District Clerks are taken from the reports of the County Superintendents. Any errors or omissions in mailing will be promptly corrected as soon as we are notified of them. The name of the *county* must be given as well as the name of the post office.

NEW EDITION OF THE SCHOOL LAW.—The California School Law has been out of print for some months. As the new School Law, passed in the Political Code, goes into effect on the first day of January, 1873, the State Superintendent hesitated to incur the expense of publishing another edition of the California School Law. But the State Board of Education, at its last meeting, requested him to publish another edition. The School Law has been placed in the hands of the printer, and will, in a few days, be ready for distribution. County Superintendents will be supplied first, and School-officers are earnestly requested to apply for copies to the County Superintendents, and *not* to the State Superintendent. Only enough copies will be printed to supply each district in the State with one copy.

SOME POINTS OF THE NEW SCHOOL LAW.—The new School Law takes effect at twelve o'clock, noon, on the first day of January, 1873.

First—Professional Teachers possessing first grade certificates alone are eligible to the office of County Superintendent.

Second—Temporary certificates of any grade may be issued.

Third—In all counties containing twenty thousand inhabitants or upwards, the Superintendent must devote his whole time to the supervision of the schools in his county.

Fourth—School grounds, where practicable, must be adorned with fruit and ornamental trees and shrubbery.

Fifth—The State Teachers' Institute is abolished.

Sixth—Union Grammar Schools of two or more contiguous districts are abolished.

Seventh—A census marshal must not be an acting teacher.

Eighth—Instruction must be given in the following branches in the several grades in which each may be required, viz: reading, writing, orthography, arithmetic, geography, grammar, history of the United States, physiology, natural philosophy, natural history, vocal music, and industrial drawing.

Ninth—Every applicant for an educational diploma, or for a State certificate of the first or second grade, must be examined by written or printed and oral questions, in algebra, arithmetic, grammar, composition, geography, history of the United States, physiology, natural philosophy, natural history, orthography, defining, penmanship, reading, and the method of teaching, vocal music, and drawing.

Tenth—The life diploma must be issued to such persons only as have been engaged for ten years in teaching and have received the educational diploma, or who, after receiving such educational diploma, have held for one year the office of State or City School Superintendent.

Eleventh—State educational diplomas must be issued to such persons only as have been employed in teaching for five years.

Twelfth—The standing of each applicant in each study and in the class must be indorsed on the back of each certificate, otherwise it is not a legal certificate.

Thirteenth—In cities having graded schools, beginners shall be taught for the first two years by teachers who have had at least four years' experience, and such teachers shall rank in point of salary with those of first grade.

Fourteenth—The County Superintendents must certify to the State Board of Examination the names of persons examined before County Boards of Examination.

Fifteenth—State certificates of the second grade are valid for three years; State certificates of the third grade for two years.

Sixteenth—The Code, by cutting off the two appointed members, reduces the State Board of Education to the Governor, the Superintendent of Public Instruction, the Principal of the State Normal School, and the Superintendents of San Francisco, Sacramento, Santa Clara, Alameda, Sonoma, and San Joaquin Counties.

Seventeenth—STATE SCHOOL FUND. The Code provides that two hundred and forty thousand dollars must be raised annually for the School Fund. Into this fund goes besides the interest on State School bonds, and the interest on bonds of the State of California held by State Treasurer. The proceeds of the poll tax must be paid into the School Fund of the county.

THE STATE BOARD OF EDUCATION

Met at the office of Superintendent of Public Instruction, June 3d, 1872, at three P. M.

Present: Governor Booth, Superintendent Bolander, Messrs. Widber, Jackman, Leadbetter, Jones, Baker, Hill, and Dr. Lucky.

Absent: Messrs. Lynch and Robertson.

Governor Booth in the chair.

The minutes of the previous meeting were read and approved.

The committee appointed at the last meeting to prepare and report rules and regulations for the government of State, County and City Boards of Examination asked for further time in which to report. The request was granted.

On motion of Dr. Lucky it was resolved that the CALIFORNIA TEACHER be designated as the Educational Journal, to which the State Superintendent shall subscribe for the number of copies required to supply the officers named in the School Law.

The State Superintendent was authorized to subscribe for 2,800 copies of the TEACHER.

On motion of Mr. Baker it was resolved that the subscription price of the CALIFORNIA TEACHER be fixed at $1 50 per annum per copy.

On recommendation of the State Board of Examination, Life Diplomas were granted to the following persons :

H. C. Kinno, of San Francisco.
Mrs. E. A. Waters, of
Miss Mary J. Watson, of Sacramento County.
Mrs. A. S. Duane, of San Francisco.
M. V. Chapman, of
Miss Mary I. Pascoe, of San Francisco.
Miss Susan N. Jewett, of Alameda County.
Joseph Legett, of Nevada County.
Miss Helen Thompson, of San Francisco.
Mrs. C. R. Beals, of San Francisco.
Miss E. A. Cleveland, of San Francisco.
Miss Kate Sullivan, of San Francisco.
Miss M. E. Stowell, of San Francisco.
Miss P. M. Stowell, of San Francisco.
Miss E. A. Shaw, of San Francisco.
Miss C. V. Benjamin, of San Francisco.
Miss Rosa Levinson, of San Francisco.
Miss A. E. Slavan, of San Francisco.
Miss M. A. Casebolt, of San Francisco.
Miss Jessie Smith, of San Francisco.

Duplicate Life Diplomas were granted to :

Philip Prior, of San Francisco.
Miss E. Foster, of San Francisco.
Stephen C. Stevens, of Sacramento County.

On motion of Superintendent Bolander a committee of three was appointed to make additional selections to add to the list of books for use in district school libraries. The chair appointed Messrs. Bolander, Baker and Lucky as such committee.

On motion of Superintendent Bolander a committee of three was appointed to revise the course of study in use in the public schools, and adapt the same to the changes that will be made by the new code. Messrs. Bolander, Jones and Hill were appointed such committee.

On motion of Mr. Baker a committee of three was appointed to devise a plan for the uniform and systematic grading of the public schools in the several counties of the State, to report at the next meeting of the Board. The chair appointed Messrs. Baker, Bolander and Jackman as such committee.

A resolution was adopted requesting the State Superintendent to cause to be printed and distributed an edition of the present School Law.

The Secretary presented the application of the Trustees of St. Mary's College of San Francisco for a charter of incorporation. Granted.

Also similar applications from the Trustees of the Pacific Theological Seminary of Oakland, and of the Christian College of the State of California, located at Santa Rosa, were presented and granted.

No further business appearing, the Board adjourned to meet at the call of the Secretary.

HENRY N. BOLANDER, Secretary.

INDIAN CHILDREN.

" Hon. H. N. Bolander, Superintendent Public Instruction :

" DEAR SIR : We have in our district a class of citizens who have half blood Indian children, and by the decision of your predecessor they were returned as Indian children in our last census returns. Therefore I take the liberty of addressing you as to what returns will he recognized in your office in regard to said half-bred children ; and I wish to know if there is any provision for their attending schools for white children."

The above letter was referred to the Attorney General, who decided as follows :

" Children of half white and half Indian blood are ' Indians ' within the meaning of the statute excluding Indians from white schools. The rule as fixed by many cases is that a person must have more white blood than black to he classed ' white.' Our statute placing Indians and blacks upon equal footing, the rule applies to Indian as well as to negro children."

1. Indian children (or half-breed children) living under the guardianship of white persons, must he included in the census returns.

2. Section 56 of the California School Law, and sections 1,669 and 1,670 of the Political Code, provide for the education of Indian and half-breed children.

If either of the parents is a half-breed, the children are white in the eyes of the law, and entitled to attend the schools for white children.

HENRY N. BOLANDER,
Superintendent of Public Instruction.

ANOTHER DECISION.

The following point has been submitted to me for decision :

" At our last annual election in and for Lassen School District we, according as I understood the law, elected three trustees for one, two, and three years, respectively. Said election was the first ever held in the district, as it was newly formed, having been set off from Seneca District. Mr. ——, a trustee of Seneca District, prior to the new district being set off from it, acted as trustee for Lassen District, and refuses to give up his position in July, and insists on holding a year longer. My object in writing to you is to know whether he can do so lawfully or not.

Section 19 of the California School Law reads as follows :

" The County Superintendent shall have power, and it shall be his duty * * * to appoint trustees for any new districts ; *provided*, however, that when a new district is organized, such of the trustees of the old district as reside within the limits of the new one shall be trustees of the new one, and the vacancy in the old district shall be filled by appointment."

But Section 37 reads :

* * * " In new districts, acting under trustees appointed by the County Superintendent, three trustees shall he elected for one, two and three years, respectively."

The question was submitted to the Attorney General, who decided that, under the provisions of section 19, the trustee of the old district, if he reside within the limits of the new district, can hold his office in the new district during the full term for which he was elected in the old district.

This appears to be the intention of the law, for section 37 provides that only in new districts, acting under trustees *appointed by the County Superintendent*, three trustees shall be elected for one, two and three years, respectively. Now the trustee of the old district who acts, by virtue of his residence, as trustee of the new district, was not *appointed* but *elected*, and should therefore be entitled to the full term of office for which he was elected.

HENRY N. BOLANDER,
Superintendent of Public Instruction.

STATE SERIES OF TEXT BOOKS.

Robinson's Series of Arithmetics.
Warren Colburn's Intellectual Arithmetic.
McGuffey's Series of Eclectic Readers.
[Willson's Primary Speller and Larger Speller.
Monteith's Series of Geographies.
Brown's Series of Grammars.
Swinton's Condensed U. S. History.
Swinton's Word Analysis, Parts I and II.

COUNTY INSTITUTES.

We will be unable hereafter to publish the full minutes of any County Institute; but we can always find room for a synopsis of the proceedings. Secretaries of Institutes will please govern themselves accordingly.

THE NEVADA COUNTY TEACHERS' INSTITUTE held its session from May 8th to May 10th. The attendance was unusually large, sixty members being enrolled, including Supt. Bolander, Prof. Carr of the State University, and Dr. Lucky of the Normal School. Of course with *such* an attendance the institute could not fail but to be a success; and what is more especially worthy of attention, this was a working instead of a talking institute. Class exercises and illustrations of methods took the place of the wordy and prosy essays so common on such occasions.

THE JOINT INSTITUTE FOR MENDOCINO AND LAKE COUNTIES met at Lakoport, Wednesday May 29th, 1872, and held a four days session. The State Superintendent was present during the last day, and was very much pleased with the professional enthusiasm of the teachers, and the admirable harmony and efficiency with which the proceedings were conducted. Among the resolutions passed was one which strongly indorses the principle of compulsory education, and pledges the teachers of Mendocino and Lake Counties to use their influence to secure its adoption.

SISKIYOU COUNTY TEACHERS' INSTITUTE.—Previous engagements prevented the State Superintendent's attendance at the institute. From the synopsis of the proceedings published in one of the Yreka journals we infer that the institute was a success, and of unusual interest to outsiders as well as to professionals.

The action of the State Board of Education in adopting Swinton's History as a Common School Text Book, was severely criticised, and it was further contended that while said History might be well in colleges and normal schools, it is too statistical for ordinary scholars in common schools. The History was considered a valuable book of reference in an editorial room, but too uninteresting for school children of ordinary minds. The County Superintendent, Prof. Godfrey, defended the work, and was the only one who did not resolve that in the opinion of the teachers of Siskiyou County, Swinton's History of the United States is unfit for a Common School Text Book. Resolution passed by ayes 19, noes, 1.

THE STATE BOARD OF EXAMINATION, appointed by the State Superintendent last December, for the term of one year, consists of Miss M. F. Austin, Mrs. M. W. Kincaid, John Swett, and W. J. G. Williams. The Supt. of Public Instruction is *ex officio* chairman of the Board. We call attention to the following resolutions adopted by the Board at its first regular meeting, December 6th, 1872.

Resolved, That the State Board of Examination will renew no certificates of any grade whatever.

Resolved, That the State Board will issue State Certificates on County Examinations in such cases only as those in which the papers bear evidence of having been critically, carefully, and honestly examined and credited.

Resolved, That no "extra credits" will be allowed except in vocal music and in drawing, and in those branches only on a certificate from the County Board that the applicants were actually examined.

Resolved, That the State Board will issue no certificate of a higher grade on one of a lower grade, and that no complimentary certificate will be issued without examination, under any circumstances, inasmuch as it involves a violation of the letter and the spirit of the School Law.

Resolved, That the State Board will recognize as *valid certificates* those only which have indorsed on them the standing and percentages of the holders, in compliance with the letter of the law; and that County Boards, County Superintendents, and City Boards be requested to adopt the same rule, in conformity to law.

Resolved, That the Board of Normal School Trustees be requested to indorse on the second and third grade certificates issued to undergraduates, the standing of the holders in the various studies required by law on State Certificates, in order that the standard of professional teaching be not degraded.

The attention of teachers is particularly called to the fact that, hereafter, the examinations in "Defining" will be based on *Swinton's Word Analysis*, and in the Theory and Practice of Teaching, on *Russel's Normal Training*, and *Porter's Human Intellect*.

LIST OF COUNTY SUPERINTENDENTS.

Several unavoidable errors having crept into the list of County Superintendents published in the last BIENNIAL REPORT, we give below a correct list of Superintendents and their post offices:

ALAMEDA—Rev. W. F. B. Lynch, San Leandro.
ALPINE—John Bagnall, Silver Mountain.
AMADOR—Rev. S. G. Briggs, Jackson.
BUTTE—H. T. Batchelder, Oroville.
CALAVERAS—Edward F. Walker, San Andreas.
COLUSA—E. J. Edwards, Colusa.
CONTRA COSTA—H. S. Raven, Alamo.
DEL NORTE—John R. Nickel, Crescent City.
EL DORADO—Whitman H. Hill, Placerville.
FRESNO—Rev. T. O. Ellis, King's River.
HUMBOLDT—James B. Brown, Eureka.
INYO—John W. Symmes, Independence.
KERN—J. H. Cornwall, Linn's Valley.
KLAMATH—A. Hartz, Sawyer's Bar.
LAKE—Mack Mathews, Lower Lake.
LASSEN—Z. N. Spaulding, Susanville,
LOS ANGELES—W. M. McFadden, Anaheim.
MARIN—Samuel Saunders, San Rafael.
MARIPOSA—David Egenboff, Mariposa.
MENDOCINO—J. W. Covington, Ukiah City.
MERCED—S. W. P. Ross, Snelling.
MONO—J. S. Kikendale, Coleville.

MONTEREY—S. M. Shearer, San Juan.
NAPA—Rev. G. W. Ford, Napa.
NEVADA—B. J. Watson, Nevada City.
PLACER—John T. Kinkade, Auburn.
PLUMAS—J. A. Edman, Meadow Valley.
SACRAMENTO—Samuel H. Jackman, Sacramento.
SAN BERNARDINO—John Brown, Jr., San Bernardino.
SAN DIEGO—B. S. McLafferty, San Diego.
SAN FRANCISCO—J. H. Widber, San Francisco.
SAN JOAQUIN—W. R. Leadbetter, Stockton.
SAN LUIS OBISPO—P. A. Forrester, Cambria.
SAN MATEO—H. E. Jewett, Redwood City.
SANTA BARBARA—J. C. Hamer, Santa Barbara.
SANTA CLARA—Geo. F. Baker, San José.
SANTA CRUZ—H. E. Makiuney, Santa Cruz.
SHASTA—W. L. Carter, Shasta.
SIERRA—A. M. Phalin, Port Wine.
SISKIYOU—Grove K. Godfrey, Yreka.
SOLANO—Wm. H. Fry, Vaca Station.
SONOMA—Geo. W. Jones, Santa Rosa.
STANISLAUS—James Burney, Modesto.
SUTTER—M. C. Clark, Yuba City.
TEHAMA—F. A. Vestal, Tehama.
TRINITY—William Lovett, Weaverville.
TULARE—S. G. Creighton, Visalia.
TUOLUMNE—Redney de Haven, Sonora.
YOLO—Giles N. Freman, Woodland.
YUBA—Thomas H. Steel, Marysville.

EDITORS' TABLE.

EARLY HISTORY OF THE CALIFORNIA TEACHER.

The CALIFORNIA TEACHER enters with this number upon its ninth volume. A few words relating to the early history of this journal seem therefore not inappropriate. The TEACHER was established by vote of the State Teachers' Institute in 1863. Mr. Swett and Mr. Minns were elected editors; but, as Mr. Minns could not give the time required, Samuel I. C. Swezey was substituted as one of the two managing editors. The management of the journal continued in the hands of these two editors until July, 1868, when it passed into the hands of the State Superintendent, Mr. Fitzgerald, and his brother, Deputy Superintendent A. L. Fitzgerald. During the first five years of its existence its success was due in no small degree to the good judgment of Mr. Swezey, and to his careful management of the details connected with its publication. Before a State subscription placed the journal on a safe financial basis, it required sharp financiering to make both ends meet. We have before us a report made by Mr. Swezey in 1868 to the State Educational Society, from which we make the following extracts:

"As a matter of fact the entire labor of conducting the TEACHER has been performed by Mr. Swett and the undersigned [Mr. Swezey]. The two have acted in harmony, and have exercised a mutual supervision over each other. Any article or paragraph to which either has objected has been suppressed. The 'Department of Public Instruction' in the TEACHER, however, was under the exclusive control of Mr. Swett during his administration; while, as a general rule, the 'Book Notices' were the special department of the undersigned, who has also attended to the proof-read-

ing, mailing, accounts and business correspondence. The receipts of the first two years did not equal the cost of printing. The third year the receipts and expenses were about equal. During the fourth and fifth years the receipts have so far exceeded the expenses as to enable the undersigned to depute to other hands the actual drudgery of mailing; and at the end of the whole term the two working resident editors are able to rejoice in the fact that they are neither material losers nor gainers pecuniarily in the conduct of their editorial experiments. Last year the balance sufficed to meet a portion of the office rent of the undersigned, and to leave perhaps $25 per month to the editors as compensation for the labor bestowed. During the year now ending the same result is probable, though as the bills are not all settled, it is impracticable to speak positively on the subject. At the close of each volume Mr. Swett and the undersigned have divided equally the profits or the losses of the year, and commenced the succeeding one with clear books, to stand or fall on its own merits."

CALIFORNIA S. N. S. GRADUATES.—Of the first graduating class, of four members, 1863, only one is now engaged in teaching—Miss Augusta V. Fink, in San Francisco. Out of the second class of nineteen, 1864, six only are now teaching. Of the third class, nine, December, 1864, two are now teaching. Of the fourth class, fourteen, 1865, seven are now teaching. George S. Perkins of this class is an engineer, Portland, Oregon. Of the fifth class, December, 1865, eleven, six are now teaching. Loutit is a young lawyer of Stockton. Of the sixth class, 1866, twenty-two, eleven are teaching. Humphrey and White are Principals of Grammar Schools in San Francisco. Of the seventh class, 1867, thirty-one, ten are teaching. Kennedy is in San Jose. Of the eighth class, ten, November, 1867, four are teaching. Of the ninth class, thirty-eight, 1868, ten to our knowledge, are teaching. Hammond is teaching in Stockton. Of the tenth class, twenty-nine, 1869, nine to our knowledge, are teaching. The whole number of graduates up to 1871, was 253. George W. Minns, formerly Principal of the California State Normal School, is now a professor in the Latin High School in Boston, at a salary of $3,500 dollars a year.

SHALL education be compulsory? is the popular cry; and it is somewhat astonishing to one's idea of logic, the mass of statistics the echoes bring back. A Connecticut governor tells us, if report is correct, that only four and one third per cent of the children of his State, of school age, are in the streets. The secretary of the board of education, in his report, corroborates the statement of the governor. Mr. Philbrick, in his last report to the Boston school board, gives us as his opinion that only one per cent of the children of that city who should be in school are unaccounted for. On the contrary, we are told by a writer in the May number of Scribner's Monthly that in the State of New York but little more than three fourths of the school population are registered, while in the best educated States only eight ninths are known to attend at all. We presume that among the "best educated" States would be classed Connecticut and Massachusetts. And we assume that Boston, with its huge foreign population, would have quite as large a per cent of its children, in proportion to the whole number, not in attendance upon the daily sessions of her schools, as the other cities and towns of the State combined. So there seems to be a conflict of statements here. We are not able to reconcile them; neither do we care to. The point with us is, not that ninety-six or ninety-nine per cent of the children of the Commonwealth are, at some period of their lives, enrolled for a day or more upon the school registers of the State; but that so large a percentage of them are growing up without that culture and breadth of intelligence essential to the correct

performance of the responsible duties of citizens of the republic. Will our educators who deal in figures tell us what per cent of those entering school at five are there at eight, at ten, at twelve, and at fourteen? Here lies the back-bone of the argument. It is not a question of truancy, but of amount of individual attendance, simply, on school instruction.—*The Teacher, Boston, Mass.*

CITY EVENING NORMAL SCHOOL.—This school was organized in March last, in San Francisco, for the benefit of such teachers in the Department as desire to improve in their profession. The average attendance for the three months ending June 31st, 1872, was about two hundred. It is held on Monday evening of each week. Deputy City Superintendent Swett was elected Principal, with the following corps of Assistants: Theodore Bradley, Miss M. F. Austin, Mrs. M. W. Kincaid, and Miss E. A. Cleveland.

SAN FRANCISCO SCHOOLS.—The closing exhibitions of the San Francisco schools passed off in a very satisfactory manner. The exhibition of the Lincoln Primary School, under the management of Miss Sullivan, was one of the best ever given in the city. The calisthenic drill of the boys was the finest we ever saw, and as nearly perfect as any one could desire. The singing was particularly good.

INDUSTRIAL SCHOOL.—John C. Pelton has been succeeded as Superintendent of the San Francisco Industrial School, by Captain Harris, formerly Supt. of the Alms House. The institution is now under the control of the Board of Supervisors. The "Reform administration" seems to have been considered a failure.

ARCHITECTURAL DRAWING.—The experiment in the San Francisco schools of teaching architectural drawing in the first and second grade classes, has been quite satisfactory. Professor Garin is a teacher of unusual skill and tact, and stands at the head of his profession. He is also an accomplished teacher of the French language.

CONVERSE HOWE, a well known teacher in Alameda County, has left teaching to engage in farming near Anaheim. Mr. Howe proved himself a superior teacher. He is a loss to the profession; but we congratulate him on seeking an independent way of getting a living.

THE State Normal School was formally opened June 18th, at the Reed Street School. The attendance is good, and promises to be large this session. The rooms now nearly ready in the Normal School building will be occupied as soon as the classes are organized.

MUSIC.—The introduction of Mason's Music Readers and Charts has proved very satisfactory to teachers and pupils. The children in the primary schools especially have made remarkable progress.

MODERN LANGUAGES.—One fourth of all the scholars in the public schools of San Francisco are studying either German or French, and large numbers are studying both languages.

GEO. H. PECK, formerly of San Francisco, is now teaching a public school near Los Angeles.

DEPUTY City Superintendent Swett, of San Francisco, has been invited by President White to deliver an address before the National Educational Association, which meets in Boston next August. Subject assigned, THE BEST METHOD OF EXAMINING AND CERTIFICATING TEACHERS. Last year Mr. Swett was invited to deliver the opening address at the meeting of the association in St. Louis. Last year he had two good reasons for declining the invitation, to wit: pressure of work, and the cost of a trip east. The same reasons may hold good this year, but being a Yank, he has a yearning to go to the hub of the universe—Boston.

IN Boston, High School Principals are paid $4,500 a year, and Principals of Grammar Schools, $,3000 a year. Even the Vice Principals are paid $300 a year more than the Principal of the largest Grammar School in San Francisco. Mean folks those Boston Yanks are! Stingy, compared to the unbounded liberality and prodigality of San Francisco.

SCIENCE.—Teachers interested in natural science will do well to send for the *Science Primers*, edited by Professors Roscoe and Stewart. They are brought out in this country by the Appletons. One on *Physics* and one on *Chemistry* are already published. They cost only 50 cents each, and are admirably adapted for the use of teachers.

GOOD ADVICE.—We suggest to teachers that don't know what to do with themselves in vacation time, to go to Oakland, drop into the State University, and hear the two Le Contes teach natural science. They are earnest teachers, and it is a delight to listen to them.

EDUCATIONAL ITEMS.

MEETING OF THE NATIONAL EDUCATIONAL ASSOCIATION.

The next annual meeting of the National Educational Association will be held in the City of Boston, Mass., on the 6th, 7th, and 8th days of August, 1872. The forenoon and evening of each day will be occupied by the General Association, and the afternoon of each day by the four Departments. The exercises will be held in the Lowell Institute Hall and the Hall of the Institute of Technology.

GENERAL ASSOCIATION.

1. Methods of Moral Instruction in Public Schools, by Dr. D. Mayo, Cincinnati, O.
2. The Co-Education of the Sexes in Higher Institutions.

[President White, of Cornell University, will present this topic, if other duties permit him to attend the meeting.]

3. Compulsory School Attendance, by Newton Bateman, State Supt. Public Instruction, Ill.

Discussion to be opened by J. P. Wickersham, State Supt. Com. Schools, Pa.

4. The Examining and Certificating of Teachers, by John Swett, Asst. Supt. Schools, San Francisco, Cal.
5. System of Normal Training Schools best Adapted to the Wants of Our People —Report by William F. Phelps, Minn., Ch'n of Comm.

6. The Educational Lessons of Statistics, by Hon. John Eaton, Jr., National Commissioner of Education.
7. Drawing in the Public School, by Walter Smith, State Director of Art Education, Mass.
8. Comparison in Education, by John D. Philbrick, Supt. Pub. Schools, Boston.

ELEMENTARY DEPARTMENT.

Miss D. A. Lathrop, Cincinnati, O., President.

1. Objective Teaching, its Scope and Limit, by N. A. Calkins, Asst. Supt. Schools, New York City.
Discussion to be opened by Miss Jennie Stickney, Boston, Mass.
2. English Grammar in Elementary Schools, by M. A. Newell, Principal of State Normal School, Baltimore, Md.
3. Instruction in Natural Science in Elementary Schools. ————.
4. Adaptation of Frœbel's Educational Ideas to American Institutions, by W. N. Hailman, Louisville, Ky.

NORMAL DEPARTMENT.

C. C. Rounds, Farmington, Me., President.

1. The Proper Work of the Normal School, by J. C. Greenough, Principal State Normal School, Rhode Island.
2. Professional Training in Normal Schools, by T. W. Harvey, State School Commissioner, Ohio.
3. The Normal Institute, by A. D. Williams, Principal State Normal School, Nebraska.
4. Normal Work among the Freedmen, by S. C. Armstrong, Hampton, Va.
5. Model Schools—Their Uses and their Relation to Normal Training.

DEPARTMENT OF SUPERINTENDENCE.

John Hancock, Cincinnati, O., President.

1. The Extent, Methods, and Value of Supervision in a System of Schools, by H. F. Harrington, Supt. Schools, New Bedford, Mass.
Discussion to be opened by J. L. Pickard, Supt. Schools, Chicago, Ill.
2. The Early Withdrawal of Pupils from School—Its Causes and Remedies, by W. T. Harris, Supt. Schools, St. Louis.
Discussion to be opened by A. P. Stone, Principal High School, Portland, Me.
3. Basis of Percentages of School Attendance—Report of Committee.
4. Public Instruction in the South, by Joseph Hodgson, State Supt. Public Instruction, Alabama.

DEPARTMENT OF HIGHER INSTRUCTION.

D. A. Wallace, Monmouth College, Ill., President.

1. College Degrees—Report of Committee, Pres. D. A. Wallace, Chairman.
2. Greek and Latin Pronunciation—Report of Committee, Prof. H. M. Tyler, of Knox College, Ill., Chairman.
3. The Method of Teaching Physics by Laboratory Practice and Objectively, by Prof. Ed. C. Pickering, of Boston.
4. Modern Languages—Their Place in the College, College Preparatory, and Scientific Preparatory Courses, by Pres. J. B. Angell, of Michigan University.
5. How to Teach English in the High School, by Prof. F. A. March, of Lafayette College, Pa.
6. General Education as a Basis of Professional Training, by Prof. John S. Hart, of Princeton College, N. J.

The daily programme will be so arranged as to afford time for the thorough discussion of the topics of the greatest interest and importance, and each discussion will be opened by a person selected for the purpose. All who may be willing to participate in these discussions, are requested to come prepared to express well matured opinions in the fewest possible words.

Considerable difficulty has been experienced in making satisfactory railroad

arrangements, but it is expected that at least two of the through lines from the West will agree to sell round-trip tickets at reduced rates. The arrangements will be announced as soon as completed. The local committee reports that nine good hotels agree to entertain guests at reduced rates—varying from $1.50 to $3.50 a day.

S. H. WHITE, *Secretary.* E. E. WHITE, *President.*

IN his last Annual Report, Warren Johnson, State Superintendent of Maine, reiterates once more his argument in favor of Compulsory Education. He bases his argument upon the following points: "1st.—The self duty upon the part of the State to health, growth, progress, perpetuity. 2d.—The obligation of the State to the tax-payer—the contract being that the former agrees to return educated citizens for the primary consideration paid by the latter. 3d.—The duty of the State to her youth, all of whom are necessarily under the bondage of their own inexperience and want of wisdom, and many of them in physical servitude to thoughtless and ignorant parents." He continues: "The first announcement to the public of compulsory school attendance, excited a momentary feeling of repugnant opposition. This was very natural, as seeming to be an invasion of the immunities and sacred privileges of the family, and as being inconsistent with the established idea of republican institutions. The first flush of thought, however, has died away largely before the second sober conviction that prevention is better than the pestilence, knowledge better than ignorance, the school-home a better institution than the jail, skilled, intelligent labor, more productive than mere brute force, that the glory and destiny of the State are dependant upon the intellectual and moral development of the rising generation."

IN Alabama the opposition to free schools has been so active that less has been accomplished than in most of the southern States. The superintendent, in his report of a year ago, uttered a warning against too much legislation for public schools. The legislature, at its recent session, seems to have gone to the other extreme, and to have failed to make such provisions for education as were imperatively demanded, that body having adjourned without making the appropriations necessary to pay the teachers of the public schools. The Agricultural College has been located at Auburn, Loe County, with Rev. I. T. Ticknor, President; Col. Geo. P. Harrison, Commandant; and seven other professors.

VIRGINIA.—A normal school bill was introduced into the general assembly of Virginia at its recent session, but the assembly adjourned without reaching final action upon it. An extra session has been called, which it is thought may consider the measure. A law has been passed for the establishment of an agricultural and mechanical college. The board of visitors, of which the members of the State Board of Education are *ex officio* members, has already organized, and a committee has been appointed to report a plan of organization and instruction for the institution.

ARKANSAS.—The State Industrial University of Arkansas has been located at Fayetteville, Washington County. The farm connected with it contains 160 acres. A temporary building has been erected, to accommodate one hundred and twenty students. The institution was opened on the 22d of January last, with Prof. N. P. Gates as Principal. There appears to be some difficulty in obtaining the agricultural land scrip due the State, and complaints exist of a want of economy in the management.

THE *Englishman's Review* for the current quarter abounds in articles of interest to the educationalist. The articles on the "Asylums and Schools at La Force," in the south of France, should be read by all school teachers and those connected with education. These schools were founded "by the untiring energy and devotion of one man, the protestant pastor, John Best, who found La Force a quiet farming village inhabited by uneducated farmers and peasants, but has filled it with schools and orphanages, so that it ranks second only to Mettray among the educational and benevolent institutions of France." The combined influence of religion and culture has made this village one of the brightest spots in all France. Cogent argument and strong common sense are the qualities that chiefly characterize the masterly paper on "Medicine as a Profession for Women." From an article on American Schools we learn that there are now thirty Colleges in the States that offer the degrees of B. A. and M. A. to women on the same conditions as to men. Most of the State Universities were founded by grants of land from the general government, and were meant for men only, but most of the States have now removed such restrictions.

IN Maine only 53 per cent of the whole school population is registered in the summer schools, and in the winter schools 59 per cent is registered. In the summer schools the average attendance of the whole school population is 41 per cent; in the winter schools 48 per cent. The average length of summer schools in weeks and days, 5½ days per week, is 9 weeks, 3 days; in winter, 10 weeks; or according to our standard of 20 days per month, 2.6 months for summer schools, and 2.7 for winter schools. $3.29 is the amount raised per scholar.

THE Georgia State Teachers' Association is to meet at Atlanta in May. The Agricultural Society of the State has appointed a committee, which is expected to report to a convention that meets in August next, recommending a place for the location of the Agricultural College.

THE Kentucky State Teachers' Association is to hold its next meeting August 12th to 16th, but a full programme of exercises has already been prepared and published. The general assembly has manifested no disposition to make the needed alterations in the common school laws.

THE Massachusetts Society for the Prevention of Cruelty to Animals offered prizes to the Boston grammar and high schools for the best essay on the prevention of cruelty to animals. The awards were made not long ago, and all the prizes, with one exception, were won by girls.

IN Illinois, after the first day of July, 1872, applicants for teachers' certificates must be examined in the elements of the natural science, Physiology, and Laws of Health, in addition to the branches now required by law.

THE last report of the Cincinnati schools shows the number of different pupils registered to be 27,140, and the total cost per pupil, exclusive of the cost of new buildings, $24.37.

THE whole number of pupils in the Boston public schools is 36,588, of which number 1,594 are in the high schools.

TENNESSEE is trying to raise by subscription $2,000,000 as a public school fund.

DODGING THE QUESTION.—Some pupils display a wonderful amount of ingenuity in their endeavors to escape direct answers to the questions of the class-room. "How not to do it" seems to have been reduced by them almost to a fine art. If the mental force expended in this direction could only be turned into the right channel and be utilized in learning the lessons assigned, what splendid results might be accomplished. If the teacher has a hobby—and what teacher has not?—these shrewd boys and girls are not slow to discover it, and to find out just how to lead him away from the unlearned lesson to his favorite theme; and when he is once fairly launched upon that, they know that they may rest easy until the recitation is over. Or, again, if a question is asked which they are unable to answer, they resort to the not uncommon expedient of making a reply that bears more or less remotely upon the subject matter of the question, in the hope that it may serve the purpose of covering up their real deficiencies. And the success which so often crowns such efforts furnishes reason enough for a repetition of the operation. Still again, the pupil rises to recite with nothing upon which to rely save the assistance to be obtained during the recitation, either directly or indirectly, from the teacher or the class. No little tact and boldness is requisite for the highest style of success here; but with these at command the want of preparation is by no means a sure omen of failure. We have known instances where the pupil has succeeded in threading his way through quite intricate subjects, and has even won the reputation of brilliancy in the recitation, with no knowledge whatever of the topic under discussion, and with nothing to guide them besides the succession of smiles of approval, the significant nods and shakes of the head, the monosyllabic encouragements and warnings of the kind hearted teacher. These and other means are sometimes employed in order to pass the ordeal of the class room and get credit for a knowledge which is not possessed. It is the business of the teacher to penetrate these disguises and to cause the pupil both to see himself, and to understand that he is seen by others, in his true light. Unless this be done, there will be an utter failure in one of the prime objects of the recitation, namely, that of ascertaining the nature and extent of the pupil's preparation of the lesson. In order to accomplish this object, let the teacher put his question or assign his topic and then *be still*. A teacher who has learned when to keep silence has made one very valuable acquisition. Insist upon full, direct and unequivocal answers to all questions. Indulge in no wandering or irrelevant talk, and permit none from the members of the class. Reserve all expression of approbation or disapprobation until the pupil's knowledge of the subject is thoroughly tested. Let all corrections and criticism, whether from the teacher or the class, be made after the pupil has finished his recitation. In short, let it be understood that success can be secured only by honest, faithful effort, and that sham and pretense will be sure to result in disgraceful failure.—*Illinois Teacher.*

UPON the subject of *Women on School Committees*, Commissioner Bicknell, of Rhode Island, says: "I am fully satisfied that it is wise to appoint women of talent, public spirit, and business tact, as school officers of the district and the town. In the Town of Tiverton, the school board during the past year has been wholly composed of women, and it is the uniform testimony of the people of that town that in no previous year has so much time and labor been devoted to the advancement of the various interests of the schools.

THE Educational Exhibition at Geneva, Switzerland, will be opened on the 26th of July, and last for about a fortnight.

BOOK NOTICES.

SCIENCE PRIMERS. D. Appleton & Co. 1872.

These "Primers" are republications of the English books, designed for use in the technical schools of England. To say that they are edited by such distinguished scientists as Professors Huxley, Roscoe, and Balfour Stewart is sufficient evidence of their merit. We have received from the publishers one primer on "Physics" and one on "Chemistry." Every teacher that has a class in either of these branches ought to have these primers on his desk. They carry these sciences down to the latest discoveries. They make a desirable supplement to some of our stilted, antique, and incorrect text-books. Judging from the questions sent out by the State Board of Examination, that venerable body ought to be presented with a copy of the "Physics Primer" with a leaf turned down at "LIGHT." Quite enough questions have been asked about the "corpuscular theory of light." *Verb. sat. sap. Price*, 50 cents each.

SCHOOL HOUSES. *Johonnot.* J. W. Schermerhorn & Co. 1871. San Francisco: Payot, Upham & Co. 275 pages.

The new edition of this well-known book is materially enlarged and improved. The subject of ventilation is well treated of; and the book contains cuts of school-houses and all sorts of school furniture and apparatus.

GOOD SELECTIONS, in prose and poetry, by W. M. Jelliffe. New York: J. W. Schermerhorn & Co. 1872. 8 vo. 169 pages.

This is a choice little volume of prose and poetry, suitable for reading, recitation and declamation in public schools. It ought to be in every school library.

TEXT BOOKS OF SCIENCE. D. Appleton & Co. 1872.
Inorganic Chemistry. W. A. Miller. [England.] 8vo. p. 300.
Theory of Heat. J. C. Maxwell. [England.] 8vo. p. 300.
Metals. C. L. Bloxom. [England.] 8vo. p. 300.

All these books are republications of the latest text books by distinguished English scientists. They will be found of great value to all High School teachers, and to others pursuing an advanced course of study.

THE following books have been received too late for notice this month:

SWINTON'S WORD-BOOK (Part 1 of the Word Analysis). Ivison, Blakeman, Taylor & Co., New York. 1871. San Francisco: Roman & Co., and Payot, Upham & Co. *Price 25 cents.*

WHITE'S GRADED-SCHOOL ARITHMETICS. Wilson, Hinkle & Co., Cincinnati. 1871. San Francisco: Payot, Upham & Co.

STEINWEHR'S GEOGRAPHIES. Wilson, Hinkle & Co., Cincinnati. 1871. San Francisco: Payot, Upham & Co.

FRENCH'S INTELLECTUAL ARITHMETIC. Harper & Brothers, New York. 1872.

FRENCH'S FIRST LESSONS IN NUMBERS. Harper. 1872.

HATZ'S FIRST LESSONS IN PHYSICS. St. Louis: Hendricks & Chelterden. 1871. San Francisco: Libby & Swett.

WRITTEN EXAMINATION QUESTIONS. New York: Ivison, Blakeman, Taylor & Co. 1872. San Francisco: Payot, Upham & Co. p. 200. *Price*, $1.00.

VENABLE'S SCHOOL HISTORY OF THE UNITED STATES. Cincinnati: Wilson, Hinkle & Co.

SARGENT AND MAY'S FIRST, SECOND, THIRD, FOURTH, AND FIFTH READERS. Philadelphia: E. H. Butler & Co. San Francisco: A. Roman & Co.

THE NEW AMERICAN PRIMARY SPELLER, and the NEW AMERICAN PRONOUNCING SPELLER. Philadelphia: E. H. Butler & Co. San Francisco: A. Roman & Co

ECLECTIC PRIMARY COPY BOOK. Cincinnati: Wilson, Hinkle & Co.

THE

CALIFORNIA TEACHER.

AUGUST, 1872.

VOL. X. SACRAMENTO. No. 2.

FEMALE EDUCATION IN THE UNITED STATES.

[*For the California Teacher.*]

A RECENT writer in *Scribner's Monthly* deals a merited rebuke to the egotism which adheres to a belief in our educational superiority, in the face of such an array of facts as are presented in the chapters on Illiteracy in the last report of the Educational Bureau at Washington. In the year 1860, the statistics of Illiteracy for the adult white population of the country showed 1,364,236 males to 1,588,003 females, or 223,767 more ignorant women than men; a proportion which has greatly increased even in those sections which we have hitherto regarded as the most thoroughly leavened with virtue and intelligence.

Between the years of 1850 and 1860 this increase amounted to eleven per cent. for the State of Maine, fifty-three in New Hampshire, twenty-five in Vermont, ten in New York, thirty-four in Massachusetts, thirty-three in Rhode Island, and sixteen in Connecticut. These States are the breakwater against the tide of foreign ignorance rolling in from the eastward; emigration, and immigration have already taken from them their educational prestige.

Since 1860, the illiteracy of the colored population must be

taken into the account of the Atlantic side of the country, and it so greatly darkens the educational map that we are fain to ask, where is the supply of teachers for so great a demand? Enormous as the work seems which is given to them to perform, the political and social revolutions in those Asiatic countries now undergoing such great changes will possibly impose upon our side of the continent one still greater. Besides this, our relations to the countries lying south of us, which are just emerging from a semi-barbarous condition, are close and peculiar. Isolation is no longer possible. Science is daily forging stronger links wherewith to bind into one Humanity the separated Races of Men.

That noble spirit of Nationalism which has hitherto distinguished us is *inclusive* rather than exclusive in its policy. There is nothing so practical as a great principle; and if we believe in "the educatibility of the whole human race, and in a heavenly law of progression for all," there is leaven enough in our intellectual life to permeate the whole mass. Education must be something more than a business, than an honorable public service; it must be "a faith and an apostolate."

The question whether the law of Homogeneity will carry us higher by the addition of the best elements in the life of other nations, or sink us lower by an infusion of the worst, is one of the gravest importance in its political and social bearings. If we were not too busy with our farms and our merchandize and our railroads to ponder these things, we might all come to believe that every acre of the public domain, and every dollar that could be saved or spared in the National Housekeeping ought to be devoted to education.

The evil consequences of illiteracy under a government like ours are everywhere admitted to be greater than under more despotic institutions—and so female illiteracy is a far greater calamity in America than it could be in China or Japan, or even in Prussia. Not only because so large a part of the public instruction is delegated to women, but because ignorance with us is never divested of responsibility. However unsatisfactory and portentious our educational outlook may be, we may still comfort ourselves with the certainty that in respect to *Female Education* our country is in advance of the most enlightened European nations.

Nobly as the Prussian Government provides for the education of her sons, we cannot accept her as a model, because she virtually ignores the value of maternal intelligence in the advancement of her people. In no part of Europe is there any practical admission by the Governments of educational equality, though places abound in which women of means may obtain the most thorough and varied instruction. *Ours is the only country where the education of women, from the elementary school to the end of the University course, is provided for by the State.*

The educational equality of woman has been called abroad "an American idea." It is an idea that grew up naturally as all the best things have grown from the roots of fitness and necessity. The early settlers of New England had urgent need of every particle of faculty that could be developed, and took the readiest means of obtaining it in establishing common schools. Boys and girls pursued the studies together, and those who went up higher into the academies and grammar schools found no difference. As they had studied together, many of them continued to be associated as instructors.

There was no break-up to the strictly collegiate course, which was then, and has continued to be, almost exclusively preparatory to the three professions—law, theology, and medicine. The profession of teaching, its dignity and ultimate superiority, was little thought of in those days; but among the few early apostles of this faith was *Mrs. Emma Willard*, a teacher of girls in Middlebury, Vermont. Scarcely a stone's throw away stood Middlebury college; but there was no one to suggest that its doors should be opened to the sisters of the young men who enjoyed its benefits, and so Mrs. Willard went to Troy, N. Y., where she founded, and by her own personal energy sustained for nearly fifty years, the first and largest female seminary in the United States. Her address to the public, and especially to the Legislature of the State of New York, in the year 1818, proposing a plan for improving Female Education, led to appropriations for this purpose in various States, and drew to her school the patronage of Governor Clinton and other eminent men.

Before the advent of Normal schools, she prepared teachers for all sections of the country; yet, though satisfied with her

own success, she by no means accepted the Female Seminary or Female College as a finality. Somebody has said "girls never *mass* well, either in schools or institutions of any kind," and the girls at Troy fell as much behind Mrs. Willard's standard as the young men at Schenectady did behind Dr. Nott's. In every place where large numbers of a single sex are congregated a deteriorating influence has always to be combated. When the great and rapidly expanding denominational power of Methodism was directed upon the question of education, and seminaries for both sexes were established, many of which have gathered hundreds into a single family, it was demonstrated that government became easier, and a generous emulation took the place of college rivalry. At Antioch College, under the severe and exacting rule of Horace Mann, there was not a case of discipline in six years. A farmer at Antioch describes the moral atmosphere of the place by saying that he planted his choicest fruit in a lot near the college. The same was true at Oberlin, where a thousand students at a time have seemed to be under no law but that of conscience and duty, which they saw personified in their honored and beloved President. It is mainly to the testing of principles sustained by institutions of this type, that we owe the revolution in public opinion which has opened the doors of more than forty colleges and universities to the female sex. Oberlin was not an experiment or an accident. It was the transplanted New England tree which needed the strong rich soil of the west to bring its fruit to perfection. Those hardy western farmers builded better than they knew when they refused to establish separate colleges for the sexes. "If our children can go safely to the district and high school, to church and Sunday school together, why not to the college, when the habits are in a great measure formed, and characters begin to wear the seriousness of maturity?" So they reasoned, and so they built on the rock of common sense instead of the sands of precedent. New York and all the great States of the west admit young women to the Universities founded on the grants of Congress. Kansas has a State law that no educational institution belonging to it shall refuse equal benefits to women; and two of the University Professors are ladies of high attainments and large experience in teaching. The University of Michigan,

the largest in numbers in the United States, has lady students not only in all its undergraduate classes, but in its departments of Law and Medicine. From Maine to California, she who will may partake of the best instruction ; the latter State, outdoing all the others, not only makes its instruction free, but admits both sexes to competition for scholarships which are worth $300 per annum.

There can be no question that institutions thus organized are far more in accordance with the spirit of the age, and represent far better the average common sense of the community, than those where traditional studies, traditional modes of government, traditional habits of thought, are regarded as the only sound and safe, to be argued and fought for to the last by every graduate honored with a degree, and every mandarin glorified by a button.

I have not touched upon the subject of our private or denominational schools, my object being simply to show that there is no longer any excuse for female illiteracy in this country. If the *organization and utilization of intellectual power can be made to keep pace with its development*, the gloomy statistics of General Eaton's report for the year 1870 may be reversed by the exercise of one of the noblest functions of womanhood.

JEANNE C. CARR.

EXAMINATION QUESTIONS.

The following sets of questions were used in the annual examination, June, 1872, of the first grade classes of the San Francisco and Oakland schools. We ask the teachers of the interior to give their classes a trial on them :

ARITHMETIC.

One Hundred Credits.

1. The area of a square lot of land is 555,025 square feet; how far is it from one corner to the corner diagonally opposite ?

2. The entire area of all the faces of a cubic block of wood

is 3,456 square inches ; what is the length and breadth of one face of the block ?

3. If the carpet for a room 15 feet long, 16 feet wide, and 10 feet high, cost $40, how much will a carpet of the same kind cost for a room 14 feet long, 18 feet wide, and twelve feet high ? (Compound Proportion.)

4. What is the commercial discount on a bill of goods invoiced at $1500, sold on five months time, at 2½ per cent. off for cash ?

5. What is the present worth of a note of $1000, due in 1 year, 8 months, 20 days, when money is worth 10 per cent. a year ?

6. A merchant wishes to borrow of the Bank of California $5000 dollars for ninety days, for what amount must he make his note, if he gets it discounted at the rate of 1½ per cent. a month ?

7. How shall I mark cloth that cost $1.60 a yard, to gain 25 per cent.; and what per cent. shall I lose, if I sell it at $1.55 a yard ?

8. A speculator bought one thousand shares of Crown Point Mining Stocks at $75 a share, what per cent. will he make on his investment if he sells it at $1500 a share ?

9. A broker bought 75 shares of C. P. R. R. stock at 20 per cent. discount; he sold 40 shares at 25 per cent. discount, and the remainder at 10 per cent. discount. Did he lose or gain, and how much ?

10. A commission merchant receives $5000 dollars to buy wheat at 1⅝ cents per pound. His commission rates at 2½ per cent. What is his commission, and how many centals of wheat will he buy ?

11. 1½+1½ is what per cent of 5-15 of ½+60 ? 24 is ⅔ per cent. of what number ? ⅓ is what per cent. of ½ ? 20 books are what per cent. of 2 books ?

12. What is the interest on a note of $4000, from May 29th, 1871, to April 19th, 1872, at 10 per cent. a year ?

13. On the eighth of January, 1870, you hired $2000 of John Doe, agreeing to pay him 12 per cent. interest. On the 15th of May, 1871, you paid him $1500, how much will you owe him on the 4th of July, 1872 ?

14. What will one hundred dollars amount to in six months, interest at 2 per cent. a month, compounded monthly ?

15. Find the sum, difference, product and quotient of ⅔ and ⅝ ?

16. Find the sum, difference, and product of the decimals four thousands and eight millionths, and the quotient of the first decimal divided by the last.

17. Divide 3-5 by $\frac{7}{8}$ and give a brief analytical solution. (No credits will be allowed for the answer, unless the analysis is given.)

18. I desire to carpet a room 25 feet long by 20 feet wide and 18 feet high, having two doors and a bay window, with carpeting $\frac{3}{4}$ of a yard wide, worth $1.50 a yard. How much will it cost me ?

19. How many times will the wheel of a railroad car, 10 feet in circumference, revolve in rolling from San Francisco to New York—3600 miles ?

20. I own a lot of land 137½ feet square. It is covered by a deposit of sand three feet thick, which it is necessary to remove to reduce it to the city grade. At 25 cents a cubic yard, how much will it cost to grade my lot.

GRAMMAR.

One Hundred Credits. Twenty-five Questions. Four Credits Each.

1. Conjugate the verb "write" in the future perfect (second future tense), indicative mood.

2. Synopsis of the verb "fly," with the noun "kite," in the indicative and potential moods.

3. Principal parts, participles and infinitives of the verb "ride"

4. Decline "I" and "you," "thou" and "thee."

5. How does a relative pronoun differ from a personal pronoun ?

6. "He brought me what he found." Parse "what."

7. What is the common way in which the plural of nouns is formed ? Name two other ways, and illustrate by examples.

8. Principal parts of the following verbs : *catch, dive, freeze, heat, slide, sleep, throw, light.*

9. Principal parts of the following verbs : (No credits unless both forms are given when the verb has two) begin, drink, eat, side, shrink, sing, spring, swim.

10. Principal parts of the following verbs : beware, can, may, must, ought, will, shall, wit.

11. Write a sentence which shall contain the two principal elements or parts of a sentence, and the three kinds of adjuncts, modifiers or subordinate elements which a sentence may have.

12. Write a complex sentence containing the words : history, study, county.

13. Write a compound sentence which shall contain an adjective clause, and an adverbial clause, using the words *Europe, America.*

14. What is the rule about pronouns having two or more anteeedents ?

15. What is the rule about verbs connected by a conjunction?

16. What else except a noun may be the subject of a sentence ?

17. What besides a noun may be the *object?*

18. Unite all the following propositions into a complex sentence : "Hood was bred in the profession of an engraver. (Principal.) (a.) In time he forsook this profession. (b.) He found something. (c.) He could command the attention (d) of the public by his whimsical verses. (a, b, c, subordinate clauses.)

19. Unite all the following propositions into a compound sentence, having two principal propositions, with two subjects and two predicates: (Principal Propositions.) (a.) He returned. (b.) He called for a glass of water. (Subordinate elements.) The distance was about a mile. He was on horseback. He returned to the camp. He was faint with the loss of blood. He was parched with thirst owing to the Summer heat.

EXAMPLE.

"Let us then be up and doing,
With a heart for any fate ;
Still achieving, still pursuing,
Learn to labor and to wait."

20. What kind of sentence ? Why ?

21. Parse *be* and *learn.*

22. Parse *achieving.* What is the second line, and what does it modify ?

EXAMPLE.

The mother who conceals her grief,
While to her breast her son she presses,
Then breathes a few brave words and brief,
Kissing the patriot brow she blesses,
With no one but her loving God,
To know the pain that weighs upon her,
Sheds holy blood as e'er the sod,
Received on Freedom's field of honor.

23. What kind of a sentence ? Why.

24. Parse *sheds, kissing* and *God.*

25. Name the adjective clauses, the adverbial clauses, the participle phrases.

HISTORY.

Fifty Credits.

1. What was the population of the United States in 1776? in 1870? What caused this great growth?

2. Who invented the cotton gin? In what year, and what was its effect on the United States?

3. Who invented the electro-magnetic telegraph? Where and when was the first line constructed, and what is now the extent of telegraph wires in the United States?

4. Name the zones of the United States in regard to production, and describe each section.

5. Name three American historians; four poets; five orators; four great generals.

6. What was the design of the Fifteenth Amendment to the Constitution, and when was it adopted?

7. What, in round numbers, was the number of troops called out by the United States in the War of Secession, and how many were killed in battle, or died from disease, and what was the national debt at the end of the war?

8. Name five battles of the war in which General Grant commanded in person; five in which General Lee commanded the Confederate armies in person.

9. Describe the battle of Gettysburg.

10. In what battles was Gen. Sherman engaged? Gen. Sheridan? Gen. Thomas? Gen. McClellan?

11. Describe the event which, in 1861, came near involving the United States in a war with England.

12. Name five of the steps or measures which led to the War of Secession.

13. In what way did Utah and Nevada become a part of the United States? How was Utah settled?

14. What was the "*Louisiana Purchase?*" When was it made, and what territory did it embrace?

15. How did the region between the Alleghanies and the Mississippi come into possession of the United States?

16. What caused the Mexican War, and what did the United States gain by it?

17. Name some marked event in each of the following administrations: Monroe's; Jackson's; Polk's; Pierce's.

18. With what events in the war of 1812 were the following men connected: Commodore Perry; General Jackson; General Scott; Commodore Decatur?

19. In what battles of the American Revolution did General Washington command in person? General Gates? General Greene?

20. What two kinds of British oppression did the colonies experience?

21. State what you can about the religion established in the different colonies.

22. In what colony was the first printing press set up, and the first newspaper established? In about what year?

23. What did England and the Colonies gain by the French and Indian War?

24. What explorations were made by Sir Francis Drake?

25. Name six French explorers and discoverers.

PHYSICAL GEOGRAPHY.

Fifty Credits. Twenty five Questions—Four Credits Each.

Add the credits and divide by 2, counting any fraction as a unit. One credit off for every two misspelled words.

1. What is the effect of the climate of the Tropical Regions and of the Frigid Zones on the human race?

2. What parts of the earth are inhabited principally by the Caucasian race?

3. Name four animals of the Arctic Regions; six of the Temperate Zones; six of the Torrid Zone.

4. Explain how coal beds were formed.

5. What are isotherms? Where do isothermal lines have their greatest deflection northward, and why?

6. What parts of the Old World are included in the great rainless region? Why are they without rain.

7. What causes produce land breezes and sea breezes?

8. Why do lakes having no outlet contain salt water?

9. Name the three great currents of the ocean. How do they modify the climate of the earth?

10. What river basins does the great central plain of North America include? What great plains in South America?

11. Name five noted volcanoes. What is about the number of active volcanoes now known?

12. Name four great earthquakes.

13. What are glaciers and how are they caused? In what countries are they found?

14. What is about the elevation of Quito and Potosi above the sea level?

15. How have Mountain Ranges and Plateaus been elevated ?

16. What are the physical advantages of Europe over the other grand divisions ?

17. What was the general order of creation ?

18. Name four great rivers that rise in the highest part of the great North American Plateau.

19. What rivers rise in the highest part of Europe ?

20. What great rivers rise in the Central Table Land of Asia ?

21. Length and breadth of California ; population ; two principal mountain ranges, and four principal rivers.

22. Boundary of Nevada ; its two principal cities, and two principal rivers.

23. Length and breadth of Oregon ; two principal rivers ; two principal cities, and principal valley.

24. Bound Washington Territory, and describe Puget Sound.

25. Bound Idaho and Montana.

PRODUCTION OF STUPIDITY IN SCHOOLS.

[*From the London Journal of Psychological Medicine.*]

I.

The state of physiological knowledge permits us to lay it down as an axiom that what is true of one system or apparatus, among those given to man, must also be true, *mutatus mutandis* (the necessary changes being made), of the rest. Without in the least degree failing to perceive the dependence of the higher faculties upon a spiritual nature, we must also perceive their dependence, during this life, upon the qualities of their material organs, the nervous centres ; and the dependence of these qualities upon the laws which regulate nutrition and cell-growth. We are therefore entitled to assume, *a priori*, that, precisely as the methods of the trainer raise the physical powers of his disciples to the highest point attainable by each organism, so analogous methods would raise the intellectual powers in the same manner and degree. The conclusion which may be formed by reasoning is not unsupported by experience ; but the masters of the art are few, and the examples of their skill are rare.

In an age of bodily repose, with nearly all locomotion artificial, with money as the principal purveyor, it is not surprising that men are careless about their physical powers, and think them hardly worth the trouble which their full cultivation would entail. Under circumstances in which strength of arm and fleetness of foot have afforded the chief sources of security, or have opened the most direct paths to renown, there has never been an approach to indifference about the means by which these qualities might be attained. If physical education be now almost wholly neglected, it is because the utility of its results has been diminished by the progress of civilization.

But this age of bodily sloth and weakness is also, it must be remembered, an age of intellectual activity and strength. The wide diffusion of knowledge, the facilities for travel, and the application of philosophy to the comforts and conveniencies of life, have increased a thousand-fold the value, to each possessor, and to the whole human race, of the perceptive and conceptive faculties of the mind. Every one who observes the facts within his sphere, and reflects upon them, may find the key to some, as yet, unopened door in the temple of Nature, or may excogitate results calculated to increase the happiness of man. The career that offers itself to the intellectual surpasses immeasurably all that has ever been offered to the corporeal powers; and it might, therefore, reasonably be expected that intellectual development would be the subject of the same foresight now, which the development of the corporeal powers was wont to call forth in former days. It might be expected (although strength and activity of limb are left to come of themselves, under the unaided influence of that playful restlessness of the young which provides against muscular atrophy) that the training of the higher faculties of the mind into due vigor and perfect symmetry would be carefully studied as a science, and diligently practiced as an art. It might be expected that the mechanism of observation and of thought, the nature and order of the processes by which, chiefly, wealth, and power, and fame are to be acquired, would be the subjects of an attention corresponding to the degree in which wealth, and power, and fame are prized. It might be expected that every one—the poor man to the extent of his means, and the rich man to the extent

of his knowledge—would seek to confirm and strengthen in his offspring the qualities by which the world is ruled. * * *

The parallel facts connected with the muscular system, and the remarkable uniformity with which the faculties of reflection and judgment expand and strengthen under proper use, may be conjointly taken to prove that the ordinary life of civilized Europe does not develop either body or mind in a degree at all commensurate with their capacities for action. * * *

From the universities, and from schools of the first order, issue many men unquestionably of high attainments, and some of great and cultivated parts; but the aggregate of both classes may be said to have a point of resemblance to Brummel's finished cravat, and to suggest that a large number of "failures" have been quietly conveyed down stairs.

In schools of an inferior kind, the attainments of the pupils are less conspicuous; and the existing state of mental education may be summed up in the earnest and weighty words of Prof. Farady, who declares that, "in physical matters, multitudes are ready to draw conclusions who have little or no power of judgment in the cases; that the same is true of other departments of knowledge; and that, generally, mankind is willing to leave the faculties which relate to judgment almost entirely uneducated, and their decisions at the mercy of ignorance, prepossessions, the passions, or even accident." The same authority says again, that "society, speaking generally, is not only ignorant as respects education of the judgment, but is also ignorant of its ignorance."

It must be conceded, we apprehend, that in the present day no man is called upon to undergo a course of severe physical training, or to exercise the muscular system to the acme of its powers. But it must also be conceded that there have been conditions of society which rendered such training the duty of every one, and in which it was enforced by a public opinion of the most rigid kind. We think that, in the times in which we live, the duty of mental cultivation is at least equally binding, and that its performance requires to be prompted by the same incentive.

For we are convinced that a very large proportion of the stupidity now existing in the world is the direct result of a

variety of influences, educational and social, which operate to the prejudice of the growing brain, either by checking its development altogether, or by unduly stimulating the sensorium at the expense of the intelligence. In the former case, general obtuseness is the result; and, in the latter, subjugation of the reasoning powers to the sensations or emotions. We are entitled to think these conditions strictly artificial; and to look upon them as distortions, analogous, in some respects, to the physical distortions of Hindoo fakirism.

The educational influence which, more than any other, is concerned in producing them, appears to us to be due to confusion of thought on the subject of those very distinct realities called knowledge and wisdom. While the prevailing weakness of the human mind—those apparent to the philosopher, and those also which are manifest to the vulgar—are alike due to want of wisdom, the efforts of ordinary instructors and the general current of the events of life are chiefly valued as they appear calculated to impart knowledge. It is not surprising that such should be the case, a great impulse having been given to education in this country at a time when the operations of the mind were not sufficiently understood to allow a just discrimination between them.

Moreover learning was a thing apparent and undeniable, easily perceptible to many who were unable to fathom its depths; while wisdom could only be recognized by the kindred wise, or in a fruition not always directly traceable to its causes. Hence and in a manner not difficult to comprehend, arose a general impression that the acquisition of knowledge was the principal, or even the only, means of gaining wisdom; and this impression was confirmed by experience of the fact that mental development is frequently coincident with efforts to learn. The exact relation between the two is not easy to define, even with all the aid afforded by recent advances in psychology; but, in former times, it was the opinion of the most advanced educationalists, that a certain routine of teaching afforded the best discipline for the growing brain, and that this routine, when aided by good abilities, was certain to produce the highest attainable results—so that men of moderate or inferior performance, who had received "a good education," were considered to be the

failures of Nature, and not of the preceptor. The hypothesis was most comfortable, serving to shift responsibility from tutors and professors, and to place it where it was borne without a murmur, while the necessary interval between the schools and life was sufficient to render obscure any possible connection between bad teaching and eventual stupidity.

During the universal prevalence of such principles as these, commenced a movement which was formerly described as "the march of intellect," but which was, more correctly, a march of schooling. Men of various calibre, and various degrees of learning, were cordially united in an attempt to elevate the masses by education. For this purpose they organized a scheme by which to pour forth knowledge like water, and, in carrying it into practice they spared neither age nor sex. Cheap publications explained every thing—in a manner to be comprehended by everybody. The fathers of England were taught (with diagrams) the philosophy of their daily duties ; the mothers, of their household avocations. Even unhappy little children, struggling through the sands of school, were caught and engulfed by the advancing wave. The great and good promoters of the original measure were overwhelmed by the coöperation of innumerable amateurs, who expected to make learning universal, by addressing, to the untaught, condensed statements of scientific results, and who looked forward to a time when the intellectual vigor of the community would be guaged by the reports of the Society for the Confusion of Useless Knowledge, or by the sale of illustrated penny serials, as the material prosperity is at present by the quarterly returns of the Register-General. The idea seemed to be, that the diffusion of knowledge would act as a stimulant upon all minds of sufficient natural power, and would call forth their energies—would set them thinking, comparing, judging ; and that the rest of mankind, those not vitalized by the potent influence, were to be regarded as unworthy of consideration in a philosophical sense, however formidable in point of numbers.

Notwithstanding the great and sudden illumination to which we have referred, there is no evidence of any remarkable advancement, any increase at all commensurate with the pains bestowed, in that cultivation of mind by which alone knowledge

can be applied or rendered useful. The words (already quoted) of Prof. Faraday may be taken as conclusive that the reasoning faculties, in all classes of the community, are very imperfectly and insufficiently developed—imperfectly as compared with their natural capabilities—insufficiently when considered with reference to the extent and variety of information with which they are called upon to deal. We are compelled to seek for the causes of this deficiency in an educational system that makes no adequate provision for mental training; and we think that a brief review of the relations between the nervous centres and the impressions that form the basis of knowledge will enable us to point out the precise nature of the chief errors in existing practice, and to define the principles by adherence to which these errors might be obviated.

The first point to which we would call attention is the existence in the young of the human species, of a distinctly *duplex* educability, depending upon distinct functions of the brain. It may be taken as conceded, we apprehend, by all physiologists, that the encephalon of man differs from that of other mammalia chiefly by the super-addition of parts whose office it is to control the succession of ideas, and to determine the course of conduct. The powers of *re-collection*, comparison, reflection, and volition, are attributes essentially human, or, at least, are possessed by men in common with higher intelligences alone. The powers of sensation, ideation, and spontaneous remembrance, are possessed also by the lower animals, and are sufficient to explain all the particulars of their conduct.

It is manifest, therefore, that the education of a child may be conducted, in the direction, and to the extent, in which it is possible to educate a horse, a dog, or an elephant, without necessarily trenching upon or at all arousing any faculty that is distinctly human in its nature. The child, moreover, possesses an endowment, of a purely sensational or animal kind, in which brutes are deficient, namely, the power (subsidiary to the gift of language) to remember a great number of sounds, and to imitate them with facility; so that, just to the extent of this power, the *sensational educability* of the human race exceeds that of the lower animals.

It should be remembered, moreover, that the functional activ-

ity of the sensorial tract of the encephalon is an absolute necessity of animal existence ; and that, in men and brutes alike, it is provided for by an energetic tendency to spontaneous development under the influence of its appropriate excitants. In what may be termed the natural life, a blind submission to the promptings of sensations, present or remembered, would in all ordinary cases supply the wants, or gratify the passions of man. It is only in life modified by human aggregation that these promptings require to be controlled by an exercise of will, guided by a prior exercise of judgment ; and, therefore, while Divine Providence has endowed the human race with sensational faculties that are called into vigorous action by daily wants or physical impressions from without, we may observe that the higher powers of the mind, in a great majority of instances, cannot be matured excepting by assiduous cultivation.

In this respect, however, there is probably a considerable original diversity between individuals ; and we are much inclined to think that herein consists the chief cause of gradations of ability among persons who neither greatly surpass an average standard nor fall greatly short of it. Observation teaches that it is far more easy in some children than in others to carry instruction beyond the sense-perceptions, and to call the intellect into activity ; but, it teaches, also, that the supposed difficulty often arises from an improper selection or application of the means employed, and is simply a failure to open a lock with a wrong key. The apparently dull child not unfrequently receives the necessary stimulus from a trivial circumstance, from a conversation, a book, or a pursuit, and may grow into a gifted man ; while a parallel transformation may be accomplished much later in life, under the influence of some new opportunity for action. It is possible that, in minds of the highest order, the intellectual faculties may possess the character of spontaniety which is commonly limited to the sensorial tract ; but, in all ordinary cases, these faculties require to be excited in the pupil by their presence and their activity in the teacher.

The sensational and intellectual functions of the human brain are not only distinct, but also in some degree antagonistic, through the application of the ordinary law of nutrition to

their respective organs. The portions of the encephalon that are most employed will receive the largest supply of blood, and will be the seats of the most vigorous cell-growth, precisely as the same rule will apply to the development of muscle ; while, on the other hand, a certain duration of disuse, or of restricted use, will occasion atrophic changes, and will be followed by that functional impairment which is a natural result of structural degeneration. It follows that men of the the highest intellectual activity are often somewhat inattentive to impressions made upon their senses ; and also that great sensational acuteness is often purchased at the cost of some torpor as regards the operations of the judgment.

Upon testing the educational customs of the present day by even the most elementary principles of psychology, it becomes apparent that a very large number of children receive precisely the kind of training which has been bestowed upon a learned pig. There are scarcely any teachers who have in the least degree studied the operations or the development of the mind (indeed, it is only within a very few years that this study has borne any fruit of great practical utility), and those who have not done so cannot realize the existence of a kind of learning which is sensational alone. Indeed, it is more in accordance with ordinary preconceptions to refer brute actions to a process of reasoning, than to consider that any human actions are automatic. The truth is, however, that the first impressions made upon the consciousness of a child have a strong natural tendency to expend themselves through the sensorium ; and usually do so, unless directed higher by the manner in which they are produced or maintained. For the purpose of such direction, time is an element of the first importance, and the idea which would be grasped by the intelligence after a certain period of undisturbed attention, will excite the sensational faculties alone if that attention be diverted by the premature intrusion of something else that solicits notice. And while in almost every child the power of intelligent attention may be aroused by care, and perfected by perseverance, the natural inclination is toward a too rapid succession of thoughts, variously associated, and remembered in their order without being understood. The faculty of comprehension, like all others, is a source of pleasure to the

possessor, even in the first feeble attempts to bring it into exercise ; and hence, as well as from the impulse given to nutrition, when once a habit of endeavoring to comprehend has been formed, although in very young children, it is not readily relinquished, but, on the contrary, is applied to the most unpromising materials.

ANNUAL COMMENCEMENT EXERCISES OF THE UNIVERSITY OF CALIFORNIA.

The commencement exercises of the University of California for the term of 1872, were held Wednesday, July 17th, at Brayton Hall, Oakland, opening at half-past ten o'clock A. M. The attendance was very large. On the arrival of the train from San Francisco, at half-past nine, the procession was formed on Broadway, headed by the band of the Second United States Artillery. Following in order were Marshal Frank Soule, Jr., and Aids, the Battalion of University Cadets, with their drum corps, Governor Booth and the Board of Regents of the University, the Academic Senate, Trustees of the College of California, State, County, and City officers in carriages, Alumni of the University, Students, Members of the Board of Education of Oakland and San Francisco, and others.

The procession proceeded directly to the hall on Twelfth street. The spacious apartment was entirely filled, a large proportion of the assemblage being ladies. The hall was tastefully decorated for the occasion with festoons of flags, flowers, emblems and mottoes.

In the center of the stage were seated the President of the University, Henry Durant; on either side were the Board of Regents, the Academic Senate, Trustees of the College, and distinguished gentlemen of San Francisco, Oakland, and from various parts of the State.

ORDER OF EXERCISES.

After music by the band, the proceedings were opened with prayer by Rev. Dr. Benjamin Ackerly. A Salutatory Oration, in Latin, was delivered by George William Reed, of Oakland,

one of the graduates. (Music by the band.) "True Utilitarianism," an oration, by Arthur Rogers of Watsonville, graduate. The production evinced deep thought and careful preparation. It abounded in fine rhetoric, and was delivered in a powerful and effective style. The orator was warmly applauded, and at the conclusion received a flattering tribute of approval from the ladies in the form of bouquets. (Music by the band.) "California," an oration, by Charles William Reed, graduate. The speaker ably reviewed the history of California, and the rise of her commercial and social institutions, and pictured in glowing language her promising destiny. The oration was given with excellent elocutionary effect, and its merits were acknowledged with frequent applause. (Music by the band.) "Possibilities," with the Valedictory Address, by John Matthews Whitworth, of Seattle, W. T., graduate. The discourse was an extended and carefully studied discussion of the possibilities within the sphere of scientific research, and developed much refined philosophical thought. The speaker concluded with the valedictory address, in which he conferred high eulogy upon the University of California, and took leave of the officers, professors and fellow students in feeling terms. (Music by the band.)

Rev. W. A. Scott, D. D., LL. D., was introduced by the President, and delivered the annual oration. *Some thoughts about the Education we want in California*, was the fruitful and appropriate theme selected for the occasion. The orator was listened to with rapt attention from beginning to close, and at times, where the argument was particularly striking and effective, and where the eloquence of the talented gentleman was irresistible, applause was given without stint.

Dr. Scott commenced with a view of the resources of our State, and said the treasure product of California will amount to $100,000,000, and the product of the soil to about the same amount, while our yield of quicksilver is only surpassed by that of Spain. Borax and other native salts are being slowly developed, and will in all probability in a few years astonish the world. With these and our coal, cotton, silk, ramie, flax, beet sugar and dairies; with skies salubrious as those of Italy; railroads, telegraph lines, and irrigating canals that shall make our great valleys rival ancient Egypt; with steamships making the

Pacific Ocean an American sea; with an increasing population and growing cities, what more do we want?

We have just and equitable laws; we want them maintained in their purity and rigor. We have machinery, but we want it worked. We want more capital in sinewy arms and active brains; we want an educated, sober, moral and industrious population to fill up our coast. We want classic, scientific and professional schools, as good as those of the highest order in any other land. We want a better and wider spread appreciation of eloquent literature and refined culture, and our youth must grow up to a high sense of personal honor, personal dignity and self-respect imbued with the principles of sound morality. We have indeed an admirable system of public schools, with a Normal School; and the crown of all is the University. Besides these we have academies and colleges controlled by our different religious denominations. From such an outlook it must appear that for a young State, California has made a good beginning. We have the foundation for almost all we shall need. We are only to build wisely on them and we shall have the broad, thorough and liberal education which California wants.

Education in its broad and liberal sense may be considered as physical, mental, æsthetical, moral and religious. In educational institutions supported by public funds, the teaching of any particular religion ought not to be attempted. It would be impractical to teach the doctrines of all the denominations in our State schools, nor can the State select any one creed without establishing a kind of State religion, thereby doing violence to the rights of the adherents of all other creeds. The happiest solution of this very delicate and difficult problem is found in the systems of England, France, and partially in Prussia. The most just and liberal course is for the State to furnish secular education, leaving the Churches to support schools of their own. Experience in this country and in Europe demonstrates that this is the only safe and practical policy to pursue. It is said that under such a system there is no guarantee for good morals, but the principals of natural religion, the intuitions of the moral faculty can be taught in the curriculum of a liberal education, without any unseasonable abrasion of conscience. The personal, moral and religious influence of the Regents and Faculty is

powerful in aid of good morals and true religion—more powerful than any ritual or formula. The permanence of our free institutions depends upon the total separation of Church and State. It is a poor compliment to the power of religion that families and Churches may not be relied on to teach religion to the youth of the nation. If Christianity without tribute from a Cæsar, but through the family and by Sunday schools and denominational institutions, is not sufficient to teach religion, then it will never be taught, and a free Church in a free State is a failure.

A German School Parliament was held a few weeks since in the free City of Hamburg, called for the purpose of "producing the material for a united nation, by the proper training of its youth." It was the twentieth general convention of the teachers of Germany, but the first under the new Empire. The purpose was a reconstruction of the school system upon the basis of national uniformity, free from political meddling and ecclesiastical interference. It was the largest educational convention ever assembled in Germany, consisting of 5,100 teachers. It was given the freedom of the city, and the occasion partook of the features of a grand festival. Germany and Scotland we have regarded as models in the matter of systems of education; and yet it is in these countries that the whole subject of education is undergoing the most thorough examination—as if everything had to be revised and done over again.

While the Imperial Parliament at Berlin was dragging along, making laws for collecting taxes and reorganizing its armies, the *real* Parliament of the nation was discussing a scheme for the volks' education which should meet the wants of the new order of things. After a session of three days it brought forth the fruits of great learning, much experience, a unanimous declaration of principles embodying a system of volks' schools, the gymnasium, a higher education, the *real* schools and universities. It was also declared unanimously that "the highest aim of national education should not be teaching merely, but training the mind, the handling of the materials in the schools in a way to develop a true manhood and an aptitude of moral freedom and order in the State, and though the State should control the scheme, it should not be as a political machine, but through the aid of savants or educational experts.

Universal suffrage implies universal education ; they must go together ; the former without the latter is "suicide where more than blood is spilt." Education is intellectual exercise and nourishment—the development of the body, of the mind and the soul in beautiful harmony of proportion. We cannot get through the world without some sort of education. The debatable question is what kind of an education we give and receive. Every human being comes into the world ready to be impressed and moulded by every influence to which he may be subjected, from within and without. None of these influences are ever *wholly* lost, through all succeeding ages. Taking for granted that in the whole curriculum of a national system of public education we are to aim at a duly proportioned preparation of our youths for the duties and emergencies of daily life, what is the connection of science with the practical in the vocations of our daily existence ? Science is a knowledge ; knowledge is gained by education ; skill, by the application of that knowledge, until the perfection of art is reached. What, then, is science ? Nothing less than the systematic arrangement of those truths and principles—as far as discovered—which the Creator has established as a basis of every department of human knowledge.

Science applied to labor is the skilful application of the principles, causes and powers of Nature to the use of the physical forces of the material world in such a way as to make the best possible use of them. Skilled labor is power. The pyramids of Egypt, which employed 100,000 men for twenty years, could be reared now in a few months by the expenditure of less than five hundred tons of coal. Improvements in machinery are endless, but man's mind must be cultivated in order to wisely use the materials and forces of Nature. It is to the interest of mankind that exchanges of products and manufactures should be made as easily and rapidly as possible. Without education and development, and the application of knowledge, these exchanges would not and could not be made. To develop our country, then, there must be, first, labor—skilled labor, directed by science, and a great deal of it. Secondly, we must have capital—the accumulation of former labor—and the right of personal property must be guaranteed. Thirdly, we must be a trading as well as a travelling, cosmopolitan people. There

must be exchanges with all the world ; but this there cannot be without accumulation, and the guaranteed right to individual property ; nor can there be an accumulation of capital without labor, and the price of labor secured as an individual right; nor can there be advantageous changes on the products of accumulated capital without faith in capitalists, in a just, wise, and stable government.

It is in such a chain of events that we see the glory of man above all other animals. By these he is made the lord of the world, and the nation that is the best educated and applies true science the most skilfully in the use of physical forces, will ever be the most powerful nation. Our youth must be taught to know the world in which they live and act. The day has long since gone down the sky when any narrow, bigoted system of education or religion can place itself in contradiction to the indisputable results of science. The march of science is as irresistable as the reign of universal law and the movements of the planets. Nor is anything to be feared by true religion or the highests interests of society from the progress of true science.

In view of our antecedents, circumstances and well grounded hopes for the future, our system of education should be thoroughly American. We are a live, working people. Our education must therefore combine the practical and useful with the profound and ornamental. The resources of our country will never be fully developed. The success of our schools is therefore the strength of our nation. The knowledge imparted by them increases our command over the products of nature, and the products of our fields and mines. It is not the buried wealth of a continent—nor is it mere possibilities for material greatness—that makes a great country. It is the intellect, the intelligence that develops its resources, that makes its greatness. Great men and great minds make great cities. New York and the Hudson would never have become the centre of the wealth and power of the continent but for such men as De Witt Clinton and Robert Fulton.

In our desire for practical education we must not forget the liberal. Liberal education is the root or fundamental education of our youth, as distinguished from the direct professional education by which our living is to be earned. It embraces philos-

ophy, religion, languages and literature, and some knowledge of the arts and sciences. A liberal education should begin and end with a thorough knowledge of our own language. The more thoroughly our youth are taught to think, and the more conversant they are in the best books of our native language, the better.

It is said, "The practical is the most important," and the practical is that which lies nearest to money-making. Admitting both are valuable, let literature be acquired first, when, and only when, it can be obtained; for if it be not acquired in youth, it will, as a rule, never be obtained at all; whereas, the practical can and will be attained in a greater or less degree in after life. Without a liberal acquaintance with the thinking of our race, found in our language, the practical education which comes of itself in after life will be narrow, superficial, unsatisfactory, and perhaps, intolerant.

"Culture" we regard as the product of a thoroughly disciplined, well-balanced mind and heart, at the foundation of which lies respect for the rights of others, sincerity, love for the truth, and reverence for the Deity. As science is knowledge arranged, and this knowledge applied is art; and the skill with which we can apply the knowledge of an art is gained by education and practice, so the whole of our educational enlightenment should ripen into the refinement and culture of a perfect gentleman—"the highest style of man."

This education should be imparted at home, *i. e.*, in our own State. It is an injustice to ourselves as Californians to let our brethern of other States and cities have the training of our youth. If it is a burden, we should not tax them with it. We are able to bear it ourselves. If it is a privilege, we should at least share it with them. There are many children who will never have the blessings of a liberal education unless offered to them at home, because they are poor. Many of our youth have not such fixed and matured habits of self-government and mental discipline, as make it safe to send them away from home to be educated. A home education, at least with us, is safest, on the score of health; in a climate proverbial for its healthfulness. We are able in every way to secure for our sons and daughters as good mental and moral training as they can get abroad. It

is only necessary for us to combine and give ourselves to the work, and as far as need be, pour out our money like water; for money is never to be weighed against a child's soul.

Dr. Scott concluded his address by picturing the great future of the University, when the rich men of the Orient will send their sons to it to be educated; by reminding his hearers of the debt of gratitude they owed their forefathers, and to the future, as pioneers on this coast, and by urging them to cast off the reproach that we cannot educate our own children.

The University Poem, delivered by Edward R. Still, M. A., was one of the leading features of the occasion.

HONORS AWARDED.

Henry Durant, LL. D., President of the University, then awarded the honors won by the graduates:

Medalist, J. M. Whitworth, of Seattle, W. T.

College of Letters, G. W. Reed, of Oakland.

College of Agriculture, Arthur Rogers, of Watsonville.

The exercises at Brayton Hall were concluded at about half-past one P. M.—*S. F. Bulletin and Call.*

NATURAL SCIENCES—INDUSTRIAL EDUCATION.

"THE time is not far distant when science and manipulative skill must be joined together."—*Humboldt.*

"THE nation most quickly promoting the intellectual development of its industrial population, must advance as surely as the country neglecting it must inevitably retrograde."—*Liebig.*

THE MYRTLE.—Fable informs us that the Greeks named this tree *Myrtos*, from *Myrsine*, an Athenian damsel, who, being overcome in wrestling and the race by Pallas, died of envy; but, being a favorite of Minerva, she was metamorphosed into a myrtle tree, which the goddess held next in esteem to her sacred olive; but Pœna says it was so named from the fragrance of the berries and plant nearly resembling the celebrated odor of *myrrha, myrrh.*—*Science Gossip.*

"IN our public schools instruction should, in my opinion, be given in elementary physics, and the first principles of chemistry. * * * Instruction in these subjects should, in my opinion, be rendered imperative. * * * I speak from practical experience when I say that the subjects above mentioned may be rendered intensely interesting to boys, and that the love for such studies which a competent teacher could evoke, would be a powerful aid to intellectual discipline * * * Much may be accomplished by extremely simple means; HOW much is only known to those who are accustomed to devise new methods of experimental demonstration. I do not think that the cost of apparatus could be regarded as an objection of the least weight to the introduction of science into our public schools. * * * In addition to elementary physics and chemistry, I should recommend the introduction of botany, and to these three sciences I would, for the present, confine attention. * * * With regard to the time to be devoted to science, six or seven hours a week would be of immense importance; even less than this would, at the end of three or four years, sum itself up to something extremely valuable."—*Tyndall.*

BOTHER THE PIGS.—We learn that as the goats destroyed the indigenous vegetation of St. Helena, so now the pigs are rooting out, or promising obliteration, by destroying the seeds of the most interesting plants of Norfolk Island. The noble Norfolk Island pine (*Arancaria Excelsa*) is likely to disappear before the pigs, which roam everywhere, greedily devouring the seeds as soon as they fall to the ground.—*Science Gossip.*

"COMMON sense, as well as the experience of other nations, indicates that an elementary knowledge of the principles of science and art involved in the occupations of the people should be introduced in primary schools, in order to make them a fitting preparation for secondary schools."—*Dr. Lyon Playfair.*

CLEANING SHELLS.—By using muriatic acid, the outer coating can easily be got rid of, and then the shell may be polished. In this way, I believe, the beautiful *Cingalese Haliotides* are polished, and by employing this method, the common black mussels become handsome purple shells.

THERE is now a commendable movement to introduce the study of the natural sciences into all grades of American schools, and to make such instruction regular and systematic. The study of nature has phases adapted to each of the successive stages of school instruction, and the practical problem is to adapt the one to the other. We believe that a true course of study should embrace all the great departments of knowledge, and that, like a spiral stairway, it should cut off a section of each at every round of ascent. The natural sciences should not be added to a scholastic course as a sort of cornice or cupola. They should enter into its foundation and structure as an essential element. —*Ohio Educational Monthly.*

GEOLOGICAL CABINETS FOR HIGH SCHOOLS.—We understand that a movement is being made to secure a cabinet of geological specimens for High Schools in Iowa. Professor C. A. White, of the State University, and formerly State Geologist, has consented to make collections something like the following: 75 named species—200 specimens—of recent and fossil radiates, mollusks and articulates. 50 named specimens illustrating the 17 formations of Iowa Geology. 45 named kinds of rocks and minerals —100 specimens. 170 kinds and 350 specimens- The collections are to be made, however, only upon condition that 10 schools will each agree to take a cabinet at fifty dollars. Who will secure similiar collections for the schools of California?

HEARTSEASE—PANSY.—(*Viola tricolor*), is best known in Germany by the name of step-mother. The two large plain colored petals being supposed to be the step-daughters, and the others, which are more gay-looking, are her own daughters.

"CHILDREN should be taught the first elements of "Physical Science," that is to say "the nature and the uses of the common things of every day life, and the relation of the natural body of man to the universe outside of it."—*Huxley.*

CURIOUS WOOD.—To such a height did the fondness of the Romans for curious wood carry them at one period of their history, that their tables were more expensive than the jewels of their ladies.

DEPARTMENT OF PUBLIC INSTRUCTION.

On the the first of May, 1872, the office of the State Superintendent was removed from San Francisco to Sacramento. Will school officers please remember this, and send all mail matter to Sacramento?

The Publication Office of the Teacher has been removed to Sacramento. All letters on business, communications for the editors, etc., must therefore be sent to Sacramento.

All applications for State Certificates or Diplomas must be sent to the State Superintendent's office in Sacramento; otherwise the applications cannot be recorded and submitted to the State Board of Examination.

Quite a number of certificates and life diplomas are remaining in the office of the State Superintendent. The Secretary of the State Board of Examination does not know where to send them. Please send address.

Erratum.—The Superintendent of Sutter County is *J. H.*, and not *M. C.*, Clark, as published last month.

This is the season of County Institutes. That there may be no lack for *practical* discussion, we submit the following questions which will be discussed by the National Educational Society: I. "What should be the proper work of Teachers' Institutes? Or more definitely: 1. What should not be done? 2. What should be done? II. What should be the definite object in questioning pupils in recitation? Specially: 1. As it regards the teacher. 2. As it relates to the pupil. 3. As it concerns the subject-matter under consideration. 4. What are the principles which should be followed in the art of questioning? III. What should be accepted as thoroughness in teaching? 1. The amount of subject-matter passed over by the pupil. 2. The degree of the pupil's familiarity with the subject-matter. 3. The facility of expression shown by the pupil when reciting. 4. The frequency of reviews. IV. What should be the special purpose of examination? Relating to: 1. Their frequency. 2. The manner of conducting them—oral or written. 3. The nature of the questions—simple or exhaustive."

COUNTY INSTITUTES.

The Napa County Teachers' Institute held its session at Napa City from June 18th to 21st. Supt. Bolander, Dr. Henry Gibbons, and Professors Knowlton and Blake, were among the lecturers. The next institute will meet at Calistoga.

The Sonoma County Teachers' Institute met at Petaluma. The attendance was quite large and a great deal of professional enthusiasm was manifested. The

exercises were varied and interesting, and Supt. Jones may well feel proud of his success in organizing and carrying on this Institute.

THE TEACHERS' INSTITUTE FOR SANTA CLARA COUNTY convened in the District Court Room, San Jose, June 25th, and continued in session four days. More than a hundred teachers were present at the Institute, including several well known teachers from abroad. Supt. Bolander was present through the entire session, and added greatly to the interest of the occasion. The attendance on the part of the public was excellent, the room being unable at times to accommodate the people. Addresses were made during the Institute by County Supt. Baker, who made a careful review of educational matters of local and general interest; by State Supt. Bolander, who, in his able, scholarly style, discussed the subjects of "Language," "Changes in the School Law," and "Natural History in the Public Schools;" by Rev. Chas. G. Ames, whose lecture on the subject of "Wasted Power" was, perhaps, the best of that gentleman's many excellent productions; by Prof. Swinton, who favored the Institute with his masterly lecture entitled "A Plan for the Study of English," and his interesting "Reminiscences of a War Correspondent;" by Prof. Carr, upon the subject "Teachers and Teaching," an address of peculiar interest; by Prof. Carlton, upon "Primary Education." Besides these, numerous debates were had upon live questions of interest. The debates were lively, interesting, practical, and instructive; the essays short and suggestive, and the lectures all that might be expected. We congratulate Supt. Baker upon his success in making this the most interesting and profitable institute we ever attended. Supt. Baker would make a successful "Institute Instructor," were such a functionary known in our State.

THE HUMBOLDT COUNTY TEACHERS' INSTITUTE met at Eureka, and held a three days session. Twenty-three teachers were in attendance—pretty well for a county which we are apt to consider the *Ultima Thule* of California's educational field. And the minutes show that Humboldt County knows full as well how to conduct a successful institute as the more southern counties, though favored as these are with the coöperation of professors and doctors innumerable. The State Supt. only deplores that a press of official business prevented his attendance. Perhaps next year will find him present at roll call.

THE PLACER COUNTY TEACHERS' INSTITUTE held a three days' session at Auburn. The exercises were of the usual order and calibre. Supt. Kinkade made a very efficient presiding officer, and a good county institute instructor. From the resolutions we cull the following: "*Resolved*, That the highest interests of our State and nation demand that compulsory education of all children between the ages of eight and fourteen years, of sound mind and proper physical ability, should be required in our public schools, or an equivalent amount of instruction elsewhere, for a period of eight months during each school year." "*Resolved*, That a free school be maintained in each school district where there are twenty-five children of school age, for a period of ten months in each school year." "*Resolved*, That in order to render Teachers' Institutes more efficient, it is the sense of this body that a corps of competent Institute Instructors should be provided for by the State or by the county." And, *Resolved* by us, the writer of this notice, "That thanks ought to be returned to the Secretaries, Henry

W. Fenton, and Mrs. Anna Burdick, for the able and interesting report of the proceedings of the meeting."

SECTION ONE HUNDRED.

OFFICE OF THE ATTORNEY GENERAL OF THE STATE OF CALIFORNIA,
Sacramento, June 20th, 1872.

Hon. Henry N. Bolander, Superintendent Public Instruction:

DEAR SIR: In answer to the question of the County Superintendent of Inyo County, it is my opinion that by Section 100 of the School Law, a lack *both* of children *and* assessable property is required to exempt a school district from the requirement to maintain a school eight months in each year.

I am, respectfully, yours,

JOHN L. LOVE,
Attorney General.

EDITORS' TABLE.

LEGAL AND ILLEGAL CERTIFICATES. — At the last session of the Legislature, among other amendments to the school law of San Francisco, was one which puts a penalty of one hundred dollars on the Superintendent and the Auditor, for paying the salary of any teacher that is not the holder of a *legal* certificate—that is, one on which the per centages in studies are not indorsed on the back of the certificate. This was simply to enforce the State law of 1866. A custom had grown up, in both State and City Boards of Examination, of issuing certificates to High School graduates without examination, of issuing higher grade certificates on lower grade ones without examination, and of putting nothing on the back to indicate standing. The State and the city were flooded with these certificates. On hunting of the records, it was found that one hundred teachers in San Francisco were without valid certificates. In consideration of the short notice for preparation, the examination was made quite easy. For third grade certificates, it was twenty-five one hundredths easier than the examination of Grammar School pupils for admission to the High Schools. The teachers stood the test well—all but a half a dozen passing. The few that failed were given temporary certificates valid for six months. Most of the High School graduates passed well, many obtaining first grade certificates. Of course there was any amount of growling about it, but the law had to be complied with. The standard of certificates has been altogether too low for some time past. It is an injustice to educated teachers to place poorly educated persons on a level with those who have fitted themselves for their business. State, City, and County Boards ought to raise the standard, and so elevate the public schools.

INCREASING.—There are over 450 teachers in the Public Schools of San Francisco, 400 of these teachers are women.

NORMAL SCHOOL GRADUATES.—The graduating exercises of the Normal Class connected with the Girls' High School were held Thursday evening, July 18th, at 8 o'clock, in the South Cosmopolitan Grammar School Building. State Superintendent Bolander delivered a short address to the graduating class, and President Clement presented the certificates. This is the first class graduating under the new Fourth Years' Normal Course.

ALVARADO.—George Brown, who taught so long and so successfully at Hornitos, is now building up a fine public school in Alvarado. He is every inch a man, and a teacher to be proud of.

DR. ROSE, of Los Angeles, has changed his mind, and, instead of going east, will remain as Principal of the Los Angeles Grammar School.

PETALUMA.—The Petaluma Grammar School stands well in that town. It ought to, for Prof. Anderson is an earnest and capable teacher. Success to him, and to all like him.

MEETING OF THE ASSOCIATION ALUMNI.

THE annual meeting of the Associated Alumni, embracing graduates from all parts of the world, was held at Oakland, July 17th, at half-past three o'clock P. M. The church was completely filled, and a large number of ladies honored the occasion with their presence. The band was stationed in the gallery, and discoursed enlivening music at frequent intervals. The President of the Alumni, J. G. McCullough, presided.

W. H. L. Barnes, who had accepted the invitation to deliver the annual oration, was unable to be present, in consequence of domestic affliction. Hon. Edward Tompkins was called to supply the vacancy, and he responded, choosing for his subject "A Liberal Education." Frequent applause testified the audience's appreciation of the gentleman's effort.

After music by the band, the President introduced the second reserve, Hon. J. W. Dwinelle, who turned the reflection of the audience in a humorous vein. In quaint but sound argument the gentleman fully convinced his hearers that everything tended to colossal development in California, and the climatic influences of our favored land promoted both intellectual and physical greatness.

The annual oration, or rather orations, having fulfilled the expectations of the assemblage most satisfactorily, the Alumni proceeded to the transaction of the usual annual business.

The Secretary read the minutes of the last annual meeting, which were approved. The President read a communication written in behalf of a large number of lady graduates, who desired to become members of the Alumni Association. By referring to the constitution he found that no obstacle to their wish existed. Lady graduates could therefore become members by simply having their names enrolled.

A special committee on Honorary Membership reported the names of the following gentlemen, all of whom were elected honorary members of the Alumni: Hon. T. B. Shannon, Hon. R. Pacheco, J. Mora Moss, A. S. Hallidie, A. J. Ralston, J. S. Martin, Louis Sachs, Henry D. Bacon, Thomas Newton, Chas. W. Howard, Hon. N. W. Spaulding, (Mayor of Oakland), Hon. Wm. Alvord, (Mayor of San Francisco), V. Rattan, Colonel J. P. Jackson, Hon. B. D. Wilson, (Los Angeles), P. S. Wilcox, J. F. Havens, Dr. A. Kellogg, Hon. W. A. Aldrich, J. E. Whitcher, Thomas Newcomb.

A special committee appointed for that purpose, reported the following officers for the Alumni for the ensuing year, which report was unanimously adopted: President, W. H. L. Barnes; Secretary, Martin Kellogg; Executive Committee, Dr. G. E. Sherman, Dr. S. Merritt, J. E. Benton.

A committee of four, consisting of Judge Tyler, J. W. Dwinelle, Rev. J. E. Benton, and Prof. Kellogg, was appointed to procure the printing of the proceedings of the Alumni, for 1871 and 1872.

The annual meeting then adjourned.

BOARD OF UNIVERSITY REGENTS.

A regular quarterly meeting of the Board of University Regents was held July 16th, Governor Booth in the chair.

Mr. Morritt reported that he had entered into the contract with Jordan for completing the Agricultural College building at Berkeley, and his action was approved.

The Committee on Instruction reported; recommending the following, viz:

To abolish the Preparatory Department at the close of this term.

To establish immediately a Professorship of Engineering and Astronomy.

To establish an Assistant-Professorship of Ancient Languages.

To employ an instructor in Hebrew and Chaldaic, at a salary of $40 per month.

The report was adopted.

It was resolved that the services of the officers and teachers of the Preparatory Department be discontinued "on and after" August 1st.

It was also resolved that the recommendations of the Committee on Instruction be referred to the Academic Senate, with a request that the Senate fill the positions created by the adoption of the report.

The Committee on Degrees presented a copy of the proceedings of the Academic Senate recommending that the degrees of the University of California be conferred on the following named gentlemen:

The degree of M. A. on A. J. Moulder, Elijah Janes, Nathaniel D. Arnot, Jr., Douglas T. Fowle, Chas. A. Wetmore; and that the degree of B. A., in the College of Letters, be conferred on George Wm. Reed and John Mathew Whitworth. Also, that the degree belonging to the College of Agriculture be conferred on Arthur Rogers.

A motion was adopted that the degrees be conferred on the gentlemen named, except Mr. Rogers, and that a degree of Bachelor of Science be conferred on him.

A protest was received from the students against a degree being conferred on Mr. Rogers.

A motion that the degree of Bachelor of Agriculture be conferred on Mr. Rogers

was lost. It was resolved that the corner-stone of the Agricultural College building be laid on September 19th, and the Secretary was instructed to notify the Masonic Grand Lodge.

The Special Committee appointed to inquire into the expediency of establishing an experimental garden made a report, which was temporarily laid on the table.

The report of the Committee on President of the University was deferred until the next meeting, on account of the absence of Mr. Felton. It is understood that Prof. Gilman will be recommended and elected.

The Board adjourned until July 23d.

Mr Bolander, from the special committee to establish an experimental garden, presented the following interesting report:

Mr. President: Your committee appointed to report on the feasibility of establishing an Experimental Garden on the grounds of the University Domain, respectfully submit the following result of their deliberations:

The geographical position of our State, the physical conditions of her soils, and her peculiar, dry and varied climate, indicate clearly this fact: that the occupations of the future generations must assume, in a great measure, a very different aspect from the present in order to develop her resources properly.

We hardly deem it necessary to point out what has been done in this respect in other countries, to aid their people by multiplying lucrative occupations. How many a new industry may be originated by the introduction of utilitarian plants, forming an important part in rural economy.

Shall we not test the technological value of our native vegetable products? Have we studied our various kinds of timber as to strength and durability? Have we studied our native vegetation as to the fibres, resins, gums, dyes, paper materials, drugs, oils, etc., it may contain? Do we know, as yet, any chemical educts of our plants? Do we know the yield in potash by our native gregarious plants? Have we examined into the yield of iodine and bromine of our immense masses of seaweeds? Have we made any toxicological researches of plants so injurious to stock?

In view of these facts, we respectfully recommend that your honorable Board of Regents locate immediately such portions of the University Domain as are to be devoted to agriculture and horticulture, and cause the same to be accurately surveyed and mapped:

1. For an orchard of specimen fruit of all kinds, likely to be successfully and profitably raised in some portion of this State, at least five acres.
2. For vineyard, mulberry, textile and oil-producing plants, four acres.
3. For culinary vegetables and small fruit, two acres.
4. For the cultivation of all kinds of useful forest and shade-trees, ten acres.
5. For the cultivation of forage and lawn grasses, two acres.
6. For the cultivation of indigenous and foreign and medicinal plants, one acre.
7. For the cultivation of all our native arborescent plants, to serve as a practical introduction to the study of botany for the students, three acres.

We respectfully recommend further:

1. That an annual appropriation of $500 be made for the purchase of all kinds of seeds of our indigenous vegetation. These seeds shall be used for exchanges with foreign institutions of a similar nature.
2. That an annual appropriation of $500 be made for the purchase and introduction of fruit-trees not existing in this State.

3. That an industrial museum be established in connection with a phyto-chemical laboratory to test the usefulness of plants.

4. That a greenhouse and a small propogating house be erected.

5. That a competent and scientific gardener be employed to lay out the grounds, and take charge of the entire work.

6. That the preservation, drying, and packing of all kinds of fruits be made a special subject of investigation.

7. That vinegar and wine-making, silk-culture, distillation of volatile oils, paper-making, be taught in connection with agriculture and horticulture.

8. That it shall be the duty of the Professor of Agriculture to superintend all operations connected with the Experimental Gardens; to open correspondence with acclimatization societies, and institutions of like purpose, in foreign countries, and to report annually to the Board of Regents on the progress and conditions of the Garden. These reports shall be published at once, and distributed at large.

9. That the students be allowed to work a certain length of time during the day, and be compensated therefor.

10. That the surplus of plants raised be distributed throughout the State, to such farmers and persons who are willing to plant the same, and to report annually on their condition.

11. That regular daily observations be made on climatic changes.

We have the honor to be yours respectfully,

HENRY N. BOLANDER,
J. WEST MARTIN,
CHAS. F. REED,
} Committee.

ALUMNI OF THE UNIVERSITY OF CALIFORNIA.—At a meeting of the graduates of the College of California and of the University, held Wednesday, July 17th, it was resolved to form a new association entirely independent of the "Associated Alumni," and that the anniversary exercises take place at such a time as might be designated by the preliminary meeting to be held the first week in June each year. Officers were chosen as follows: President, C. A. Garter; Secretary and Treasurer, M. P. Wiggin, of the class of 1867. Executive Committee—J. R. Glasscock, of 1865; W. D. Harwood, of 1866; C. A. Wetmore, of 1868, and E. H. Whitworth, of the class of 1871. There are now forty graduates of the University—including those of the College—and next year there will be fifty-two, enough to make the new association a success from the start.

JOHN BAGNALL, a pioneer teacher, well known in this State, has been for six months past engaged in teaching in the San Francisco Evening Schools. His boys and men think there is no teacher in the world like him; and, in fact, there are not many with so wonderful a fund of zeal and earnestness. Mr. Bagnall spends his vacation in Alpine County, of which he is the County Superintendent, elected by the unanimous vote of both the Republican and Democratic parties.

FINE CABINET.—The Valencia Street School, San Francisco, Silas A. White, Principal, has the finest school cabinet in the State.

CLASSICS FOR GIRLS.—The S. F. Girls' High School is to have a Latin and Greek department.

THE OAKLANN SCHOOLS.—The questions used in the annual examinations for promotion in the Oakland schools were the same as those used in San Francisco. The several grades stood the test well. The Oakland schools are in good condition. The Board last year adopted with some amendments the revised course of study of the San Francisco schools. The salary of F. M. Campbell, City Superintendent, has been raised to $2,100 a year. Mr. Campbell makes a very efficient officer. The examination in Drawing, in all the grades, showed very remarkable progress, and Mrs. John Benton, the teacher, has reason to be proud of the best drawing classes in the State. J. B. McChesney, the Principal of the Oakland High School, flourisheth like a green bay tree. E. R. Still, the poet, teaches classic literature under the oaks in the High School. Still is a born *teacher* as well as poet. We told him so ten years ago, when he was running an express office, but he did'nt believe it.

MUSIC.—The recent examination of the San Francisco schools in music, was exceedingly satisfactory. All the teachers, without exception, are delighted with Mason's Charts and Readers. Only about five per cent. of the pupils in the schools failed in being able to sing the scale.

HIGHER SALARIES.—The Principals of the large Primary Schools in San Francisco have petitioned the Board for an increase of salary. Their salaries ought to be raised to $1,500 a year—the same as that of the Assistants in the Girls' High School.

EDUCATIONAL ITEMS.

THESES,

Proposed for an English Session of the Third Annual Convention of the German-American Teachers' Association, to be held in common with their invited Anglo-Saxon Teacher guests, in Hoboken, N. J., August 3d, 1872.

1. In a democratic republic the most precious of the equal rights of the people is: to have an equal share in the best education the commonwealth can afford.

2. A high standard of education is for a nation not only the means of mental and moral improvement, but the most fruitful source of its wealth and power.

3. The results of the system of public education, as it is now carried on in the United States, are not adequate to the means, which, in many instances, if not in all, are so liberally provided for the same.

4. This inadequacy and inefficiency of our public school system, so forcibly illustrated by the alarming state of public morals, by official depravity and incapacity, which have attained such magnitude, as even to endanger the safety of our cherished institutions, call for a thorough reform in this system.

5. One of the chief causes of the unsatisfactory results of the present system of education lies in the too mechanical method of teaching, which is chiefly based on the capacity of the memory, instead of rousing and calling into action all the powers of the mind, including its avenues—the senses,—and its storehouse—the body,—so as to secure by intellectual, moral and physical culture, the harmonious growth of all the germs of excellence with which man is endowed.

6. The best remedy for the evil resulting from the present system of education is to be found in the adoption of the system which is best calculated to subserve the ends of this harmonious culture—the system inaugurated by Pestalozzi, perfected by Frœbel, and approved by the master minds in matters of education throughout the civilized world—a system which rests mainly on what is called the developing method of instruction.

7. In the Pestalozzian system, elementary education is deservedly of paramount importance, as it lays the very foundation of, and gives the direction to, all subsequent training and progress of the scholar—requiring, as a consequence, teachers the most thoughtful, the most humane, the most sincerely devoted to the highest aims and ends of humanity.

8. The most appropriate and efficient introduction to intellectual and, by implication, moral training, is Frœbel's Kindergarten, or, at least, a first elementary class conducted on similar principles—a method of instruction which prepares the child's mind, by habits of observation and an active interest in forming and expressing thought in the guise of play, for a readier perception and a clearer judgment of the different objects of empirical knowledge and inductive study.

7. This kind of elementary training, as displayed in the developing method, advances children so much faster and imparts to their minds so much more energy and elasticity, as to gain, in the pursuit of their studies, years of time, which might be most profitably spent in acquiring knowledge and accomplishments of the highest value, such as Natural History and Philosophy, Universal History, one, if not more, of the living languages, Drawing, Singing, Gymnastics, etc.

10. It is only a thorough reform in our national system of education—to be effected, mainly and especially, by the means above suggested—that can bring up such a generation of men and women as a democratic government like ours presupposes, and that can vindicate its claim to advance mankind mentally, morally, and socially, in a word, in all its highest interests, more than any other form of government, past or present.

Central Executive Committee.

FEODORE THURM, Secretary. PH. J. KLUND, Chairman.

HOBOKEN, June 8th, 1872.

WE have been favored with the programme of the forthcoming annual meeting of the Netherlands Schoolmasters' Association. From it we gather that, *inter alia*, the following questions are going to be discussed by the Dutch teachers: 1st. Are the objections to compulsory education of such a nature as to warrant any further delay of the measure? 2d. How can the instruction in needle work be made a means of intellectual development? 3d. Is it desirable to adopt the English plan of selecting the members of School Boards through the parents of the pupils themselves? 4th. How can the teacher contribute to a peaceful solution of the labor question?

THE ancient Swedish University of Upsala numbers at present one lady's name on the academical registers. Miss Betty Patterson, after a brilliant matriculative examination, began her university career by studying medicine; she has since, however, directed her special attention to philology, and becomes this half, a "citizen" of the academy. Her male *commilitones*, so far from grudging her this honor, have given this lady what the papers call a "solemn serenade." Surely there were no Scotch students taking an active part in this solemnity?

PENNSYLVANIA.—The following statement exhibits the present condition of the Public School system of that State: Number of school districts, 2,023; number of schools, 15,700; number of teachers, 17,021; average salary of male teachers per month, $41.04; average salary of female teachers per month, $32.86: average length of school term in months, 6.36; number of pupils, 834,614; average number of pupils, 567,188; percentage of attendance upon the whole number registered, .68; average cost of teachers per month for each pupil, $0.98; cost of tuition for the year, $3,926,529 88; cost of building, purchasing and renting school houses, $3,886,253 57; cost of contingencies, $1,167,124 94; total cost of tuition, building, etc., and contingencies, $8,479,918 33; total cost, including expenditures of all kinds, $8,580,-918 33; estimated value of school property, $16,889,624. There are now ten State Normal Schools in operation, or preparing to go into operation, in Pennsylvania. The officers of these institutions, including trustees, principals and faculties, number probably two hundred. They have about two thousand students. The value of the property is about $500,000. The favorable opinion with which the Legislature regards the Normal Schools, and the work they are doing for the common schools of the State, in training teachers for them, is shown in the following generous appropriations made to sustain those in operation and to establish new ones: For the education of teachers in the Normal Schools of the Commonwealth, 15,000; for the education of young colored men for teachers, at Lincoln University, $2,500; for the State Normal School at Westchester, $15,000; to aid the Cumberland State Valley Normal School, $15,000. Total, $62,500.

SOME little time ago a deputation representing no fewer than 10,000 schoolmasters waited upon Dr. Falk, the energetic German Minister of Public Instruction, and called his Excellency's attention to the object of their association, which we find circumscribed in the following platform: First, a thorough reform in the salaries of elementary teachers, with partial intervention of the State; second, the appointment as inspectors of schools of such persons only as are theoretically and practically competent: third, a more complete training of the teachers, in the science of education especially. The minister, while repudiating the idea of his being an educational Penelope, held out most comforting expectations on all the three points.

THE State of Connecticut offers to every school district which shall raise a like amount, ten dollars the first year, and five dollars each succeeding year for the purchase of apparatus, reference books, and approved library books.

THE Supreme Court of Ohio has decided that the organization of separate schools for colored children, is not in conflict with the provisions of the fourteenth amendment to the Constitution of the United States.

THE Legislature of Iowa, at its recent session, passed a law prohibiting a change of school books in any district oftener than once in three years, except by a vote of the people.

RUSSIA is waking up to the importance of public education. Thirteen thousand public schools have recently been organized there.

THE first normal school proper, in France, was established in 1808, and now she has 141.

BOOK NOTICES.

MANUEL OF AMERICAN IDEAS. For the use of Schools; for the use of Voters. By C. T. Hopkins, M. A. San Francisco: Bacon & Co. 1872.

We have run through with this book hastily, and we like it. It ought to find a place in every school library in the State. It treats of natural rights, governments, civilization, the feudal system, nobility, standing armies, political ideas, law, personal rights, representation, free speech, free press, free education, the ballot, universal suffrage, military and civil power, political parties, crimes and punishments, habeas corpus, rights of property, monopolies, duties of American citizens, and other points too numerous to mention.

KNIGHT'S AMERICAN MECHANICAL DICTIONARY. Yew York: J. B. Ford & Co. 1872.

This dictionary is beautifully illustrated, and must prove valuable and interesting to all persons interested in mechanics and machinery. It contains a description of tools, instruments, machines, processes and engineering; history of inventions; general technological vocabulary, etc. It is well suited to a school library.

QUESTIONS FOR WRITTEN EXAMINATIONS. An Aid to candidates for Teachers' Certificates and a Hand-Book for Examiners and Teachers. By John Swett. New York: Ivison, Blakeman, Taylor & Co. 1872. p. 200. Price, $1.

Part I. contains one hundred sets, or one thousand questions, actually used in examining teachers in California, and other States.

Part II. contains one hundred sets of questions used in examining the various grades of Grammar Schools in San Francisco, Chicago, St. Louis, Cincinnati, and other large cities.

This book will be found very convenient for teachers, and might with advantage be put into the school libraries. We let the author speak for himself in the preface:

"In many States and cities the examination of applicants for certificates to teach in the public schools is conducted in writing.

In many cities the promotion of pupils from one grade to another is determined by means of written examinations.

Any one who has had occasion to prepare many sets of examination questions is well aware that it requires time, study, care, and good judgment to devise queries which shall be a fair test of the knowledge of the pupils or teachers to be examined.

The sets of questions in this compilation have all been used in actual examinations of schools and teachers. Those by the present writer will be found marked "S."

The others have been drawn from the various sets used in Chicago, Cincinnati, St. Louis, Providence, San Francisco, and other cities.

They present a fair average of the general test to which teachers and scholars are subjected.

They will be found useful to teachers who are preparing for examination, because a study of them will secure the main points in the important studies.

They will be useful to examiners, because they are suggestive of principles.

They will be useful to inexperienced teachers in examining their own classes.

They will be convenient for the principals of schools who cannot find time to prepare varied sets of questions for monthly or annual examinations.

Finally, it may be remarked that the mind of any one teacher is apt to run in certain *grooves;* hence, questions prepared by some one else are likely to prove valuable and suggestive to even the best teacher.

The Hand-Book is divided into two Parts—Part I. being sets of questions used in examination of teachers, containing 100 sets and 1,000 questions; and Part II. being papers used in written examinations for grammar schools, containing 100 sets and 1,200 questions."

STEINWEHR'S SERIES OF GEOGRAPHIES. Cincinnati: Wilson, Hinkle & Co. 1871.

These geographies appear in three numbers—1, 2, and 3. The maps and illustrations are particularly good. The ten thousand million of unimportant map questions which filled up the old-style geographies, to delight microscopic school masters, but to disgust all sensible people, are missing. We thank the author for daring to snub the old-school pedagogues in their "strong suit."

The descriptive text is rather bold and uninteresting. These books ought to be in every school library, for use by teachers.

The Geographies, as a series, are in every way vastly superior to the wretched "Catechism of Geography" on our State list. We venture the assertion that no such horrid looking maps as those of the Pacific Coast in Monteith's books can be found since the days of Ptolemy, Christopher Columbus, or Capt. John Smith—the Smith that drew a map of New England. The mountains in the maps of Nevada, California and Oregon are sprinkled in at random, and are inferior to the work of fifth grade boys and girls in our public schools. For correctness, they would serve just as well for Central Africa as for the Pacific Coast.

When looking at these miserable abortions we are always reminded of Lord Timothy Dextor's book, printed a century ago. The letters were in solid line, without divisions into words, and without punctuation marks. But at the tail end there was a page of !!! ??? ;;; ::: ,,, marks, with a direction to the reader to "pepper and salt at pleasure to suit taste."

Steinwehr's Geographies are for sale by Payot, Upham & Co., San Francisco.

NEW AMERICAN SERIES OF READERS. Philadelphia: E. H. Butler & Co. 1872.

This new series appears in five numbers, the Fifth Reader being the highest. The Readers are accompanied by two Spellers. The books are well bound and well executed typographically. The illustrations are *fair*, but not in a high style of art. The selections throughout are pretty good, and are vastly superior to the *namby-pamby* doggerel and pup-and-hen prose of McGuffey's Series. The Fifth Reader has a mild flavor of science. In all the books some selections are made from modern authors. The Spellers have some good features. Words are classified partly on the object system. The lessons are short. They have some defects. The larger speller for advanced classes begins like Webster's dear old book, with the alphabet, succeeded by words of two letters.

San Francisco: A. Roman & Co.

NEW ARITHMETIC.

FRENCH'S FIRST LESSONS IN NUMBERS has been adopted for use in the Primary Schools of San Francisco, in addition to Robinson's Written Arithmetic. French's Mental Arithmetic is by far the best book of the kind we have ever seen.

SWINTON'S WORD-BOOK.

This has recently been adopted for use in the Fifth, Fourth, and Third Grades in the San Francisco schools. The teachers are delighted with it. Swinton's Word-Analysis goes into the First and Second Grades.

THE

CALIFORNIA TEACHER.

SEPTEMBER, 1872.

VOL. X. SACRAMENTO. No. 3.

USEFULNESS OF TREES.

"The toils of Science swell the wealth of Art."—SCHILLER.

THE subject of this and many other articles which we intend to publish from time to time, may seem entirely inappropriate for introduction in a journal like the TEACHER. But those who are posted in school matters know that all which relates to the happiness and comfort of mankind, is a proper subject for discussion; and that, in many countries, teachers are compelled by law to acquaint themselves with the leading principles of agriculture, horticulture and forestry. And, certainly, if any State is in need of such a provision, it is ours, for the improvident and reckless destruction of our forests is carried on in a frightful manner. Man cuts and slashes without reason, giving no quarter. Realizing, as yet, not the great danger, we sleep and perhaps will sleep till the gnawing of want will awaken us.

Again, knowing that idleness is the prime cause of thriftlessness and vice, we will bring from time to time articles on the useful and profitable employment of our children. "Come let us live for our children," exclaimed the greatest of all teachers in modern time. And certainly, we cannot accomplish this in a better way, than by affording our children the means and ways of spending their time, out of school, in an instructive and edifying manner, by teaching them how to make themselves use-

ful to their parents by the acquirement of the art of planting and raising all kinds of useful vegetable products; and by the acquirement of the proper and successful treatment of domestic fowls and animals. Children like both, if they receive only the necessary encouragement; they have a natural adaptibility for it; they do it instinctively. And if properly encouraged, it grows into a habit, becomes fixed.

We have not yet met a single child that was not fond of either. What child would not like to have a little garden, or a small patch in a garden to call its own? What child would not like to take care of some domestic fowls? Many parents are in the habit of giving their children money for their private bank to cultivate thriftiness. This is a good habit, a laudable one. But would it not be better still to pay them for what they raise, to buy their products? Would not the idea that they contributed something to the support of the family double their energy? Observe your children in early childhood and see how desirous and anxious they are to assist you in household work; how busily they engage themselves in various ways; how they call into action their vivid imagination to invent some employment. Foster this instinct, feed it, aid it, and there will be few good-for-nothing fellows in this world.

Frœbel has very beautifully remarked, "Play is the labor of the child." And Goethe says "there is a deep meaning in the games of children." Their play is all ideal; they are actors, every one of them. Why not utilize these instincts? Let children have access to a chest of carpenter's tools, and observe what experiments they will enter upon. Why should we not give them tools and teach them how to use them? It would be, most certainly, a great mistake to suppose that this would not be education. Education, in a double sense, is training of the body and the mind also. There have been written a great many works on education; but not a chapter on the educational value of tools. They are the most perfect set of gymnastic apparatus ever invented. What are dumb bells, pilasters, poles, and leaping bars, when compared with the mattock, spade, axe, adze, auger, gimlet, boat oar, and other implements of toil? What can equal the square, compass, plummet and rule, as an introductory step in knowledge? The idea that industrial

drawing should precede reading and writing is already an old one, but carried out in a very few schools only. We are too apt to forget that health is the basis, and education the ornament, of humanity. Tools should be the gymnastic apparatus, and geometry the first mental training.

California is yet a young State. Many a town will be laid out yet, and in many, lots are still quite cheap. In view of these facts, we would suggest that school authorities acquire lots of some considerable size. These should answer both purposes: that of recreation and of establishing thereon a small experimental garden, where children could acquaint themselves with the principal operations of horticulture. It has been done elsewhere, and why should it not be done here? If we desire to identify our children with the interests of the country, eradicate that spirit of petulant destructiveness, elevate their ethical and moral feeling; it becomes a necessity to make our schools a place of industry as well as of learning.

The uses of trees are endless. Industry and an infinite variety of mechanical contrivances, depend upon an abundance of wood. Trees purify the air by absorbing its carbonic acid which is noxious to animal life, and return to it oxygen suitable for breathing. Planted along swamps, they keep off malaria. They mitigate the heat of our dry summer clime, and increase the salubrity of the country. (Let the incredulous place a thermometer on a hot day in the open air, and then among green leaves, and observe the difference.) Trees give off heat, and afford shelter in cold weather. They reduce the dryness of the air and ground; they cause springs to flow continually, and prevent destructive floods during the rainy season. The want of trees retards vegetation in spring, and diminishes the productiveness of soil. Trees most certainly equalize rain. Compare the rainfall of the Coast Ranges with that of the Sacramento Valley, and observe how striking the difference! But we desire to call attention to the following extract, made from a lecture of Baron F. Mueller, Director of the Botanical Gardens at Melbourne:

"How forests beneficially affect a clime, how they supply equable humidity, how they afford extensive shelter, create springs, and control the flow of rivers; all this the teachings of

science, the records of history, and more forcibly still, the suffering, or even ruin of numerous and vast communities, have demonstrated in sad experiences, not only in times long past, but even in very recent periods. In what manner the forests arrest passing miasmata, or set a limit to the spreading of rust-spores from ruined cornfields; in what manner their humid atmosphere and their feathered singers effectually hinder the progress of vast masses of locusts, or oppose the wanderings of other insects elsewhere—all this has been clearly witnessed in our own age. How the forests, as slow conductors of heat, lessen the temperature of warm climes, or banish siroccos; how forests, as ready conductors of electricity, must influence and attract the current of the vapors, or impede the elastic flow of the air with its storms and its humidity far above the actual heighth of the trees, and how they condense the moisture of the clouds by lowering the temperature of the atmosphere, has over and over again been ascertained by many a thoughtful observer. In what mode the forests shelter the soil from solar heat, and produce coolness through radiation from the endlessly multiplied surfaces of their leaves, and the process of exhalation; how in the spongy stratum of decaying vegetable remnants, they retain far more humidity than even cultivated soil; how they with avidity re-absorb the surplus of moisture from the air, and refresh by a never wanting dew all vegetation within them, and in their vicinity, has been explained, not only by natural philosophy, but also often by observations of the plainest kind. How forest trees, by the powerful penetration of their roots, decompose the rocks, and force unceasingly from deep strata the mineral elements of vegetable nutrition to the surface; how they create and maintain the sources for the gentle flow of watercourses for motive power, aqueducts, irrigation, water traffic and navigation; how they mitigate or prevent malarious influences—of all this we become cognizant by daily experiences almost everywhere around us. We have to look, therefore, far beyond a temporary wood supply, when we wish to estimate the blessings of forest vegetation rightly, and our mind has to grasp the complex causes and sequences originating with and depending on the forests, before their value as a total can be understood.

"Let us then take a timely warning; let us remember that denuded earth parts with its warmth by radiation, and is intensely heated by insolation; that thus in woodless countries the extremes of climate are brought about in rendering the winter-cold far more intense and boisterous, and the summer-heat far more burning and oppressive. Let us remember why the absence or destruction of forests involves periodic floods and draughts, with all the great disasters inseparable therefrom. Let it not be forgotten, how, without a due proportion of woodland, no country can be great and prosperous. It should be borne in mind that the productiveness of cereal fields is often increased at the rate of fully 50 per cent., merely by establishing plantations of shelter trees; that the progress of drift-sand is checked by tree plantations; and that a belt of timber not only affords protection against storms, but also converts sandy wastes finally into arable meadows, thus adding almost unobserved, yet unceasingly, so far to the resources of a country.

"Shall we follow then the example of those improvident populations who, by clearing off forests, diminished most unduly the annual fall of rain, or prevented its retention; who caused a dearth of timber and fuel, by which not solely the operations of their artizans became already hindered or even paralyzed, but through which even many a flourishing country tract was already converted almost into a desert? Should we not rather commence to convert any desert tract into a smiling country, by thinking early and unselfishly of the requirements of those who are to follow us? Why not rather imitate the example set by an Egyptian sovereign, who alone caused, during the earlier part of this century, 20,000,000 of trees to be planted in formerly rainless parts of his dominions."

PRODUCTION OF STUPIDITY IN SCHOOLS.

[*From the London Journal of Psychological Medicine.*]

II.

In schools, under the stern pressure of the popular demand for knowledge, it is an extremely common practice to accumulate new impressions with greater rapidity than they can

be received, even by children who have enjoyed the inestimable advantage of early domestic training toward the right employment of their higher faculties. The work laid down can often only be accomplished by means of the promptitude that is a chief characteristic of instinctive action. The child who uses his intelligence must perfect the instrument for himself, must grope in the dark, must puzzle, must catch at stray gleams of light, before his mind can embrace the whole of any but the simplest question. The former brings out his result, such as it is, immediately; the latter, by slow degrees; often first giving utterance to the steps by which he is reaching it. The former is commonly thought quick and clever; the latter, slow and stupid; and the educational treatment of each is based upon this assumption, widely as it is often at variance with the facts. The child whose tendency is to sensational activity should be held back, and be made to master the meaning of every thing he is allowed to learn. He is usually encouraged to remember sounds, is pushed forward, is crammed with words to the exclusion of knowledge, and is taught to consider himself a prodigy of youthful talent. The child who tries to understand his lessons should be encouraged, praised, supplied with food for thought of a kind suited to his capacity, and aided by a helping hand over the chief difficulties in his path. He is usually snubbed as a dunce, punished for his slowness, forced into sensational learning as his only escape from disgrace. The master, in many cases, has little option in the matter. Children are expected to know more than they have time to learn; parents and examiners must have show and surface, things only to be purchased at the expense of solidity and strength. A discreet teacher may often feel sympathy with the difficulties of a pupil; but the half-hour allotted to the class is passing away, the next subject is treading upon the heels of the present one, the child must complete his task like the rest, and so a budding intellect may be sacrificed to the demands of custom.

Among the children of the educated classes, the circumstances of domestic life usually afford to the intelligence an amount of stimulus which, if not of the best possible kind, is at least sufficient to compensate, in some degree, for the sensational work

of school. The easy nursery-lessons of the prescholastic age, the story-books of childhood, the talk of parents and friends, all furnish food for leisurely reflection, all serve to suggest those strange questions that are one chief evidence of thoughtfulness in the young. Minds thus prepared may often flourish in spite of subsequent excessive teaching; and, by forgetting nine-tenths of what has been learned, may find it possible to understand the rest.

In what are called "elementary schools," however, those aided by the nation for the instruction of the children of the poor, we do not find this accidental provision against the paralyzing effects of the prescribed routine. * * *

Coincidentally with an entire absence of intellectual cultivation, they usually display a degree of sensational acuteness not often found in the nurseries of the wealthy, and arising from that habitual shifting for themselves in small matters which is forced upon them by the absence of the tender and refined affection that loves to anticipate the wants of infancy. They go to school for a brief period, and the master tries to cram them with as much knowledge as possible. They learn easily, but *they learn only sounds*, and seldom know that it is possible to learn any thing more. In many cottages there are children who, as they phrase it, "repeat a piece" at the half-yearly examination. We say, from frequent experiments, that they will learn for this purpose a passage in any foreign language as easily as in English; or, that they will learn an English paragraph backward way, if told to do so; and that, in neither case, will any curiosity be excited about the meaning of the composition. In ordinary practice, the master explains what they repeat, saying this means so-and-so; and the pupils have sufficient sensational acuteness to remember the sounds he utters, and to reproduce them when called upon. They do not usually understand what "meaning" is. An urchin may be able to say correctly that a word pointed out to him is an adverb or a pronoun, may proceed to give a definition of either, and examples of instances of its occurrence, and may produce an impression that he understands all this, when the truth is that he has only learned to make certain noises in a particular order, and when he is unable to say any thing intelligible about the matter in

language of his own. Or he may repeat the multiplication-table and even work by it, saying that $7\times8=56$, without knowing what 56 is or what 7 times 8 means. He knows all about 7 or 8, not from schooling, but from the lessons of life, from having had 7 nuts or 8 marbles; but of the 56, which is beyond his experience he knows *nothing*. The nature of the mental operations of such children is perhaps as little known to the teacher, to the vicar of the parish, or the kind ladies who take an interest in the school, as the nature of the mental operations of the inhabitants of Saturn. The adults distinctly understand a thing which they feel to be very easy, and do not know that any children *can* talk about it correctly without attaching an idea to their words. They often think the teaching satisfactory which enables the pupil to explain things in set phrases. They do not realize the possibility that the explanation may be as little understood as the statement which it explains—that it may be like the tortoise in the Hindoo myth, which supports the elephant, but which, requiring support itself, only removes the difficulty by a single step—that it may be a second unknown quantity balancing the first in the equation $x=y$. Such, however, instead of bare possibilities, are too frequently actual results. We have already referred incidentally to a learned pig, and to the parallelism between its training and some kinds of human education. Persons familiar with the tricks taught to animals are aware that these may all be described as muscular actions performed each consecutively to its proper signal. On hearing the finger-nails of the master click together, the animal does something in obedience to the sensation: nods it head, or shakes its head, or stands erect, as the case may be. It has no idea that the nod is an affirmation, or the shake a negation, and probably has no thirst for knowledge about the matter, being content to play its part correctly, and to escape the whip. In the case of children, the medium of communication is different, and the kind of response is different; but the faculty in action is commonly the same. The words of the pig's master are mere by-play, intended to amuse the audience, and the signal is conveyed by other sounds. The words of the human teacher or examiner, his questions, for instance, are the signals to the child, each requiring its appropriate answer: but, like the sig

nals to the pig, they are aural sensations, capable, as such, of producing muscular action through the medium of the sensorium alone. The responses of the child are in words—that is to say, in sounds that he has been taught, and that he remembers, but of which he need not understand one iota in order to repeat them, any more than the pig need understand the affirmative or negative character of its nod or shake. In the human species articulate speech is an act precisely analogous to locomotion, requiring the combined and harmonious working of several muscles and the guidance of sense, but in no way essentially connected with the intelligence; and the child may make the right noises, in the right order, just as the pig does not nod its head when the signal requires it to be shaken.

A general idea of the facts, which we have endeavored to state, was conveyed to the public many years ago by a phrase now almost forgotten. Educationalists found, by experience, that children managed to retain sounds without meaning, and they called the process "learning by rote." But these suggestions, to the best of our recollection of them, did not go to the root of the matter, and were mainly based on the assumption that learning by rote was characterized by some sort of deficiency only, and not by a radical error in the kind of impression made upon the pupil. It was not distinctly stated, or commonly conceded (though often applied in phraseology), that the action of the child's mind was of a nature essentially distinct from that which it would be the object of a wise instructor to excite; and the cause of the error was mainly sought in teaching not carried far enough to be beneficial, or not continued sufficiently long to produce permanent results. We conceive that the recent development of nervous physiology entitles us to maintain that learning by rote is at once the effect and the evidence of operations limited to the sensorial ganglia; and that such operations have no tendency, however they may be complicated or prolonged, to excite those functions of the cerebrum which are the peculiar attributes of humanity.

Our brief remaining space must be devoted to an examination of the effects of sensational learning, both as it exists in most schools for the poor, and also in the form, more or less modified, which may be found in other institutions.

Physiologically speaking, the effect of purely sensational learning will be to stimulate the nutrition and increase the vigor of the sensorial tract at the expense of neigboring and related organs. As we have seen, the sensorium has a natural tendency to predominance in the encephalon; and this tendency will be increased in every way, absolutely by direct exitation, and relatively by neglect of the intellect and volition. The sensations by which the stimulus has been given will not be long remembered, being superseded by fresh ones rising out of events, as the apparatus of the gymnasium would be superseded by the instruments of actual conflict. With the exception of being, perhaps, able to read with labor, and to write with difficulty, the pupils must not be expected, six months after leaving school, to possess any traces of their "education" beyond an invigorated sensorium and a stunted intelligence.

Now, when it is remembered that present sensations are the source of the least exalted kinds of animal gratification, and that sensations, either present, or remembered, or conceived, when combined with a feeling of pleasure or pain, constitute the emotions which so powerfully influence human conduct, it must be admitted that the sensorium is at least the seat of development of those passions and propensities which society, for its own good, is compelled to keep in check, and which every consideration of right teaches individuals to subdue. When, therefore, we reflect upon the operation of predominant emotions in producing, among other evils, chorea, hysteria, epilepsy, and insanity, or when we consider the aggregate of misery produced, especially among the lower orders, by the unbridled indulgence of various appetites, we cannot altogether concur in the propriety of a system of education which has a direct tendency to raise the source of these emotions and appetites to an undue and unnatural prominence in the organism. In our own experience we have met with so many examples of what may be called habitual non-reflection in young people who had been six months before among the most glib and fluent pupils at a sensational school, that we fancy we can recognize a kind of stupidity thus introduced, and that we can readily distinguish it from any thing at all similar that is purely natural.

We should be disposed, on the whole, to seek the *rationale* of

many educational failures rather in a partial and misdirected training of the intelligence, than in its complete suppression. The pupils mix intellectual and sensational acts, not in their proper relations to each other, but in a jumble. Comprehension is brought to bear upon every thing that is easy; while a difficulty of any kind is committed to the safe keeping of the sense perceptions, and the explanation of it is only remembered. Hence arises a habit of resting upon imperfect knowledge, and a habit of loading the memory by the aid of faulty associations; and these habits, in their turn, are the sources of the lively superficial stupidity which is so common among the better classes. The sufferers from it form that great public to whom are addressed the Morisonian system of pathology and therapeutics, and the elaborately argued advertisements of Norton's Camomile Pills. Every thing that follows "because" is to their minds an explanation; every thing that has an antecedent is to their minds an effect. Their creed is, that all questions lie in a nutshell; and, according to Prof. Faraday, their shibboleth is "it stands to reason." On this ground they would placidly maintain against Owen the existence of the sea-serpent. For their especial behoof bubble companies are formed; and upon their weaknesses innumerable imposters thrive. Their deficiency is chiefly this—that, having been permitted from childhood to do many things superficially and with inexactness, they have forfeited the power of arranging their ideas with precision, or of comparing them with caution. They can therefore scarcely be said to possess any assured convictions, or rooted principles of conduct; but, nevertheless, they are ready to decide in all controversies; and are "wiser in their own conceit than seven men who can render a reason."

The cause of such errors we should express in a single word —empiricism. For successive ages teachers had no guide but experience; and the results of this experience appeared to defy generalization. The almost self-evident proposition, that the training of the mind should be guided by an analysis of its powers, was brought into early disrepute by the conditions under which such analysis was attempted. The men engaged in it, learned, patient, laborious, profound, reached the limit of discovery by the method of reflection long before the

method of observation was disclosed to them. Too exclusively metaphysical, they wanted a link to connect them with the material world. Like the children of Israel, they were wandering in a wilderness before they entered the promised land. Their advanced messengers had not yet returned, bringing of the fruits that were hereafter to reward their labor. Foiled in their advance by a barrier that seemed impassable, they were tempted to waste their energies in the invention of technicalities and the multiplying of verbal distinctions. Under such circumstances the science and its professors were too broad a mark to escape the shafts of satire, and thus, even at the present day, there are scars to show the wounds which those shafts have made.

During the last few years, however, the dark portions of this much contemned pursuit have received unexpected illumination from the study of the nervous centres. The painstaking researches of Bell, Marshall Hall, and less conspicuous fellow-laborers, endowed with value and stamped with currency by the lofty generalizations of the living philosopher who has so long been *facile princeps* (the admitted chief) among all enquirers into the functions of the nervous system, have already produced a psychology that is available for practical purposes, and that promises to increase daily in importance. In the meanwhile education has spread enormously, but educators persist in traversing the broad old road. The larger the field for their efforts, the more conspicuous becomes the poverty of their results. At one time, learning by rote was the great obstacle; and they attacked, as the last difficulty in their path, what was but the first aspect of a Proteus. At present (with the scheme of a national education all but a confessed and palpable failure; with numerous individuals in all ranks displaying powers developed late in life by circumstances, but never suspected before; and with a waste of the national intellect that may possibly be equivalent to the daily loss of a century's progress), the office of preceptor is still confided to persons who have never bestowed a single thought upon the faculties, or the mechanism of the mind, and who cannot distinguish between sensational and intellectual action, if the former be veiled by the smallest complexity.

Toward the carrying out of any improvement in education, the first step must be to demand from teachers, either a knowledge of mental philosophy, or, at least, of a scholastic art founded upon the principles which mental philosophy would inculcate. We believe this demand must inevitably be made in process of time; but we feel also that it would be greatly promoted if the medical profession would recognize, and strive to impress, the distinct bearing of physiology upon the development of the mind, as well as upon that of the body.

The practical difficulties, which it is easy to foresee, all resolve themselves, pretty clearly, into one. An inquiry after intelligent and intelligible teaching has not yet issued from the public. They are content with something else. Whenever this contentment ceases, the means of supply will spring out of the want. And, until then, we would urge upon individual parents that they may accomplish much by encouraging in their little ones a spirit of curiosity, and a habit of comprehension. Whether the fire of intellect shall blaze, or smoulder, will depend in many cases upon the manner in which it is kindled; and this kindling is among the things that can be done, most effectually, under the mild influences of home.

THE STUDY OF NATURAL HISTORY.—ITS OBJECT.

[*For the California Teacher.*]

Of late years, serious complaints have frequently been raised that too many studies are taught in our schools, that the scholars are overtasked, and that education overreaches itself, and in attempting to teach too many things, teaches none thoroughly. Superficiality is cried out as one of the growing evils of American education, and European thoroughness is held up in glaring contrast. In California our public schools have also been already charged with the vice of teaching too many studies, and of teaching superficially in consequence. Great must

be then the value of any new study to insure it even only a respectful reception on trial.

There is another consideration which appears to make the study of Natural History especially uncalled for and unwelcome. The utilitarian demands of the nineteenth century guage every study by the standard of utility, and thus the study of Natural History is placed at the very bottom of the scale; not only in popular estimation, but in the estimation even of the rank and file of the teaching profession. For the advantages to be derived from the study of Natural History are neither direct —as furnishing a certain complement of knowledge, the acquisition of which will more fully prepare the pupil to enter upon the "bread-and-butter making" struggle of life; nor palpably indirect—as necessary for the more complete and thorough studying of other branches of knowledge.

Our common schools can make no adequate provisions for any other education than that which will prepare the pupils for the practical duties of life. A professional or a liberal education must be left to colleges and universities, or to self-instruction. Common school education is thus very limited; and from its very limitation it is apt to degenerate into mere instruction. The fact is the demand for knowledge is so pressing, that every study is guaged solely by the amount of knowledge it may bestow; and the only concern is that this knowledge be bestowed as rapidly and indelibly as possible. Whether the mental powers grow or dwindle is not considered by the multitude; *knowledge*, not *education*, is exacted. The multitude never asks, does the pupil learn to think, judge, reason; and the consequence is "that in physical matters, multitudes are ready to draw conclusions who have little or no power of judgment in the case; that the same is true of other departments of knowledge; and that, generally, mankind is willing to leave the faculties which relate to judgment almost entirely uneducated, and their decisions at the mercy of ignorance, prepossessions, the passions, or even accident." (*Prof. Farady.*) "Society, speaking generally, is not only ignorant as respects education of the judgment, but is also ignorant of its ignorance." *Ibid.*

The multitude is apt to consider the acquisition of knowledge the *end* of education, that is, that education has no ulterior ob-

ject than to stock the mind with a certain complement of truths or objects of knowledge. Of course, from this standpoint, the cultivation of the mental faculties is regarded as subordinate to the acquisition of knowledge. Educators, on the other hand, hold that the acquisition of knowledge is the *means* of education, that is, the primary object of education is the cultivation of the mind by calling its faculties into exercise. Of course, from this point of view, the possession of knowledge is regarded as subordinate to the cultivation of our faculties.

Now the fact is that both multitude and teacher regard, must regard, the acquisition of knowledge as the end and not the means of education, and the cultivation of our faculties as subordinate to the acquisition of knowledge. It was only when it was found that under the current method of teaching—such as "learning by rote," the "pouring-in process," etc.—the children did not *learn* enough or not fast enough, that is, did not acquire enough knowledge, or did not acquire it fast enough, or did not retain the acquired knowledge, it was only *then* that teachers examined their methods of teaching, and gradually learned the principle that *the acquisition of knowledge must result as much as possible from the spontaneous exercise of the faculties engaged in the acquisition.* But this does not prove that therefore the cultivation of the faculties, and not the acquisition of knowledge, becomes necessarily the end of education. For in that case, those studies or parts of studies should be selected which are best adapted to excite the spontaneous activity of all the mental faculties. But the fact is, the spontaneous activity of only those faculties is excited which may have to be used in order to acquire the complement of knowledge laid down in the curriculum. The question is, not what studies are best adapted to develop the full vigor and symmetry of all the faculties and capacities of the mind, but how to teach Reading, Arithmetic, Grammar, etc.; and incidentally the question is raised, what faculties are engaged in their acquisition; because if we know this, we know also that by exciting the spontaneous activity of these faculties, we will be enabled to teach thoroughly and satisfactorily.

By this method of teaching we must, of course, incidentally develop certain faculties of the mind. Still the cultivation of some

faculties does not necessarily imply the cultivation of *all* the faculties; on the contrary, the cultivation of one faculty may result in the dwarfing of another. The fact is, our usual method of teaching develops certain faculties at the expense of the noblest faculty of man—the reasoning faculty or the Understanding Proper. "It may be taken as conclusive that the reasoning faculties in all classes of the community, are very imperfectly and insufficiently developed—imperfectly as compared with their natural capabilities—insufficiently when considered with reference to the extent and variety of information with which they are called upon to deal." The studies laid down in the curriculum of our common schools call into exercise every faculty except the reasoning faculty. This is acknowledged by educators; hence, they have insisted upon the necessity of introducing certain lessons—Object Lessons—for no other purpose than to develop all the faculties of the mind. But to this end these lessons are altogether inadequate, not so much from any inherent want of fitness perhaps, as from the manner in which they are worked up. The first step must be to demand from writers on object lessons "either a knowledge of mental philosophy, or, at least, of a scholastic art founded upon the principles which mental philosophy would inculcate." To show the necessity of this demand we need only to instance Mr. E. A. Sheldon, one of the most prominent writers on "Object Lessons"—whose Manual of Elementary Instruction professes to be a "graduated course of Object Lessons for training the senses and developing the faculties of children." (See title page.) I will not speak of that frontispiece, in which is given a tree whose stem and branches represent the subordination, coördination, and successive development of the mental powers. But let us turn to the text, to page 42, to the Exercise on the Fable, "The Lark and her Young Ones." The following are the "Points on which the Conceptive Faculties are exercised: The corn field; appearance of the ripe corn; the hidden nest, with mother bird and young ones; the anxiety of the former; conversation in the field, should be, as it were, dramatically rendered." What *concepts* can be evolved from such points? Oh, shades of Sir William Hamilton! The reasoning faculties are exercised in the following points: "Why the lark builds her low nest among the corn,

What danger she avoids. What danger she incurs. What the young birds would infer from the first and second conversations. What the old bird. What the young birds would infer from the third conversation. What the old bird. What she would do." I presume point first is the major premise ; point second, the minor premise ; point third, the conclusion ; and so on, *seriatim*. In the next example, (page 44) Mr. Sheldon states that that which must be developed is that which can be discovered by the observation or the reasoning faculty. The reasoning faculty an instrument of discovery! In his introductory remarks on Color, Mr. Sheldon proposes in his First Step, to exercise the perceptive faculty in distinguishing various colors; to exercise the memory in learning the names of these colors (metaphysicians usually assign this work to the perceptive faculty) ; the conceptive faculty is exercised in a small degree by recalling absent objects of a certain color, which is held before them (this work is usually left to memory). "In the third step, the reasoning faculty is exercised on the relation and production of different colors." This makes blue one of the premises, yellow the other, and green the conclusion (product). If such are the teachings of those who profess to be the guides of teachers, it is no wonder that the reasoning faculties are so imperfectly and insufficiently developed, not only in pupils, but in teachers themselves.

Object lessons should be made subsidiary to every study, or rather form the basis of each study; but as a means of developing any other faculties than the perceptive and mnemonic faculties they are as inadequate as the study of reading, of geography, etc. The studies usually taught in school, including object lessons, may develop the presentative faculty (perception and self-conciousness), the conservative faculty (memory), the reproductive faculty (suggestion and reminiscence), and the representative faculty (imagination) ; but they cannot adequately develop that faculty of which these faculties are only subsidiary—the Elaborative or Discursive Faculty, or the Understanding Proper. All the other faculties "acquire, preserve, call out and hold up, the materials, for the use of this higher faculty which operates upon these materials." "This faculty has only one operation ; it only compares—it is comparison, the faculty of rela-

tions. Under comparison, I include the conditions, and the result, of comparison. In order to compare, the mind must divide or separate, and conjoin or compose. Analysis and synthesis are, therefore, the conditions of comparison. Again, the result of comparison is either the affirmation of one thing of another, or the negation of one thing of another. If the mind affirm one thing of another, it conjoins them, and is thus again synthesis. If it deny one thing of another, it disjoins them, and is thus again analysis. Generalization, which is the result of synthesis and analysis, is thus an act of comparison, and is properly denominated conception. Judgment is only the comparison of two terms or notions directly together; Reasoning, only the comparison of two terms or notions with each other through a third. Conception or generalization, judgment and reasoning, are thus only various applications of comparison, and not even entitled to the distinction of separate faculties." (*Sir William Hamilton's Lectures on Metaphysics.*)

For the cultivation of the noblest faculty of man—the reasoning faculty, we must then select a study by means of which we can teach comparison or generalizing, judging and reasoning. But to make this comparison or generalizing, judging and reasoning, as much as possible spontaneous, and thereby insure the greatest possible activity of the reasoning faculties, and thence their fullest development, the study under consideration must furnish its material through the agency of the subordinate faculties, and must thus secure their cultivation also. Of the studies thus far incorporated into the curriculum of the common school, none possess the above requisite for developing all the faculties, but especially the reasoning faculty. In order to communicate our thoughts to others, and receive theirs in return, we must learn writing and reading. Whichever method of teaching we may adopt, all our efforts are limited to the making and recognizing of the arbitrary signs used as the representatives of speech. Certainly no other faculties can be developed than perception and memory. Of mathematics we can only teach the alphabet; and even if we taught it in its entireness, the study, however great its value as an instrument of scientific research, is ill adapted to serve the ends of a higher intellectual growth. The scope of geography is indicated by its defini-

tion as a *description* of the earth; an enumeration of the earth's physical structure and characteristics, its natural products, its political divisions, and the people which inhabit it. History must restrict itself to the mere recital of events, with here and there a biographical account interspersed. Goes history beyond this, it enters upon inquiries far beyond the compass of any child's comprehension. Grammar is perhaps one of the most serviceable studies to forward the ends of education proper; but then the scholars must have passed beyond the point of considering it "as the art of speaking or writing with propriety or correctness, according to established usage."

If the cultivation of the reasoning faculties is a necessity, we must introduce a new study to secure this cultivation. And no study is better fitted for this purpose than the study of Natural History. First, it is within the comprehension of the children attending our common schools. Secondly, by its means all the mental faculties can be developed. The perceptive faculty is cultivated in acquiring an immediate knowledge of the individual objects; the conceptive faculty is cultivated in forming concepts—that is the cognition of the general character or characters, point or points, in which a plurality of objects coincide. By comparing these concepts and uniting them under still more comprehensive concepts, we generalize. Comparing two concepts, two individual things, or a concept and an individual to recognize in what relation they stand to each other—of congruence or of confliction—we judge. A simple example will explain this more fully. Let us assume that we have before us an animal. Through perception we obtain the immediate knowledge of this animal, as a complement of certain qualities or characters, considered simply as belonging to the animal itself. If among these qualities or characters we perceive some which the animal has in common with other animals, we *conceive* the animal under a general notion (common term or noun). If we compare, say a bear with a racoon, and find that they possess certain points in common—for instance, feet resting with the entire sole upon the earth—we conceive them under a general notion, *plantigrades*, and in thus classifying them we have conceived them under a concept, we have generalized. If we compare two concepts, say the concept *lion* with the concept

carnivorous animal, and ask in what relation they stand to each other, and find that this relation is one of congruity, because both classes of animals live on flesh, we *judge*, and our judgment will stand : the lion is a carnivorous animal. If we compare two concepts, the concept *seal* with the concept *carnivorous animal*, but cannot immediately determine in what relation they stand to each other, whether of congruity or of difference, we must introduce a third concept ; let this be the concept of *an animal furnished with three kinds of teeth*. Comparing first the concept *animal furnished with three kinds of teeth* with the concept *carnivorous animal*, we judge that an animal furnished with three kinds of teeth is a carnivorous animal. Comparing then the concept *seal* with the concept *animal furnished with three kinds of teeth*, we judge that the seal is an animal furnished with three kinds of teeth. Now we can at last compare together our original concepts, seal and carnivorous animal, and affirm that the seal is a carnivorous animal. The whole process will stand thus :

An animal furnished with three kinds of teeth is a carnivorous animal.
The seal is an animal furnished with three kinds of teeth.
Therefore the seal is a carnivorous animal.

At this last judgment we arrived, not by means of the original two concepts, but by means of introducing a third concept of whose relation with each of the other concepts we could judge. This whole process is called reasoning.

Simple, puerile almost, as the above act of reasoning may appear to us, it nevertheless involves the essential elements of every act of reasoning. And it is only by means of such simple acts of reasoning that we can teach a pupil "that scientific habit of mind which (as has been well said) is only common-sense well regulated : the art of seeing ; the art of knowing what he sees; the art of comparing, of perceiving true likenesses and true differences, and so of classifying and arranging what he sees ; the act of connecting facts together in his own mind, in chains of cause and effect ; and that accurately, patiently, calmly, without prejudice, vanity, or temper. Accuracy, patience, freedom from prejudice, carelessness for all except the truth, whatever the truth may be, are not these virtues which it is worth any trouble to gain? Virtue, not merely of the intellect, but of the character, which, once gained, a man can apply

to all subjects, and employ for the acquisition of all solid knowledge. And I know no study whatsoever more able to help a man to acquire that inductive habit of mind than natural history." (*Rev. Chas. Kingsley.*)

Even if the curriculum of the common school is too crowded already, a place must nevertheless be found for the study of Natural History. For no matter in what station of life we may be placed, without that scientific habit of the mind which compares accurately and patiently, judges calmly and exhaustively, reasons in accordance with the facts, and without prejudice, no true or lasting work will be done, or can be done. And our common schools will be recreant to their trust, if they do not provide the means of acquiring this scientific habit of thought.

NATURAL SCIENCES—INDUSTRIAL EDUCATION.

A GODSEND.—During this Summer we have had many fires, consuming large quantities of grain. The calamity is liable to occur every year, and may prove a serious obstacle to farming generally. Fortunately, California possesses a tree which is most fitly adapted to prevent the spreading of fire in grain fields. We refer to the Monterey Cypress. That tree is a Godsend, a veritable panacea, California's greatest benefactor. It embodies all qualities necessary to prove an effectual preventative. It is easily raised from seed, makes rapid growth, even in poor, dry soil, of thirty to forty feet in four years. It is true its spreading branches occupy a great deal of space; but what of that when shelter from wind and protection against fire make crops a certainty? The horizontally spreading branches rest, if not trimmed (which should never be done), on the ground, and form a compact, dense and impenetrable thicket. It is free from insects; stands firmly against the wind, for it takes a firm hold almost in any kind of soil, if the final transplantation is made in its first year of growth. It thrives in every clime of our state, except in the higher and colder mountain regions. It attains a height of one hundred and fifty feet, with a stem of nine feet in circumference. Large grain fields should be sub-

divided, and the boundary lines planted with a row of this tree. The heat of burning grain is not sufficient to set it on fire Thus planted, it would also prove an excellent shelter against the heavy north winds in Spring. At first these trees should be planted closely, and gradually thinned out as they grow up. We have seen this experiment successfully tried. There is no better shelter known. It is contrary to rural economy to buy a quantity of cypress trees necessary to encircle the subdivisions of grain fields; they should be raised on the farm. Seeds of any kind of trees are best sown in portable boxes three feet long, two wide, and about four inches deep. The soil used should be a mixture of two thirds of fine sand and one third of loam. Upon this mixture of sand and loam spread sawdust to the dept of half an inch, and wet the whole thoroughly. This being done, sow the seeds upon the sawdust; cover it with a sheet of paper, or better still, with a layer of moistened moss. Keep the box in a shady place, and the ground moist, but not wet. As soon as the seeds have germinated and developed their first leaves, they should be left uncovered, and gradually exposed to light. When the plantlets have attained the height of eight or twelve inches, they should be taken up, one by one, with a dull knife, and planted in the open field in a similar manner like cabbage. By sowing the seeds about the first of September, the plantlets will have attained the proper size for transplantation after the first rains have fallen.

ORIGIN OF COAL.—According to Professor Würtz, the formation of coal depends entirely upon the action of the iron which was dissolved in the waters of the coal period. The combinations of iron with which coal is always accompanied are pyrites, iron spar, and hydrated oxide. These were doubtless derived from the strata interjected between the coal beds. In this case the oxygenated water appeared to act upon the metallic sulphercts which were contained in the crystalline slates, from the destruction of which these coal strata were derived. Coal, consequently, is the normal result of the eremacausis of organic substances in waters which contain sulphate of iron and free carbonic acid. An immense pressure upon the mass, while in a plastic condition, was also, without doubt, an additional element of importance.

IN no other way than by scientific training can the mind of a boy be disciplined in inductive reasoning and in the essential habit of seeking knowledge at first hand without the intervention of authority. * * * The information supplied by science is of paramount practical importance, in as much as modern civilization and its products are unintelligible without that information; and of paramount speculative importance, because the infusion of scientific method and the importation of scientific ideas is all that distinguishes the philosophy and the theology of the present day from that of a thousand years ago. * * * Physics lie at the foundation of all science, and if nothing else were taught,, it would be a great gain to have the youth of this country soundly instructed in the laws of the elementary forces—gravitation, heat, light, etc. * * * The state of knowledge regarding the purely physical sciences is such, that these elements can be taught as those of grammar, or those of mathematics. * * * On the whole, I am strongly in favor of confining instruction in science for disciplinal purposes, to elementary physics (with incidental chemistry) and botany, with the addition of the outlines of human physiology. —*Huxley.*

GUM ARABIC.—What is it, and where does it come from? In Morocco, after the rainy season, or about the middle of November, a gummy juice exudes spontaneously from the trunks and branches of the acacia tree. It gradually thickens in the furrow down which it runs, and assumes the form of oval and round drops, about the size of a pigeon's egg, of different colors as it comes from red or white gum trees. About the middle of December the Moors encamp on the borders of the forest, and the harvest lasts for a full month. The gum is packed in large leather sacks, and transported on the backs of camels and bullocks to seaports for shipment. The harvest occasion is made one of great rejoicing, and the people for the time being almost live on the gum, which is very nutritious and fattening. Dissolved in water and combined with other ingredients, some of which are necessary to prevent its becoming mouldy or sour, others mere adulterations, it becomes the indispensible mucilage sold by the stationers.

SIR STAFFORD NORTHCOTE, M. P., in addressing a meeting at Darlington last week, expressed his opinion that parents would take their children from school at an early age if they were merely obtaining the rudiments of education. He approved, therefore, the change within the last few years towards making education more practical and scientific. As to scientific education he said: It was held, even by statesman thirty-six years ago, that it was impossible to teach English people to draw; but the School of Art had shown the falsity of that belief. Recently attention had also been called to the need of scientific education and training, which was necessary in order that England might maintain her position securely among the nations of the world. For scientific teaching, the advantages of night schools, where instruction could be given after being engaged in the workshop during the day, could not be over-estimated. —*School Board Chronicle.*

VALUE OF THE SUNFLOWER PLANTS.—Attention is called by the editor of the *Journal of Applied Science* to the great value of the sunflower plant in various economical applications. According to this article, the sunflower can be cultivated very readily, an acre of land sustaining 25,000 plants at twelve inches distance from each other. The flowers are very attractive to bees, and furnish a great amount of honey. The average production of seeds may be estimated at fifty bushels to the acre, yielding fifty gallons of oil. This is said to be equal to olive oil for table use, and is well adapted to burning in lamps, soap making, and painting. The refuse of the above quantity of seed will produce 1,500 pounds of oil-cake, and the stalks may either be burnt to furnish potash, or, when treated like flax, may be made to yield fibre as soft as silk, and in large quantity.—*Science and Industry.*

THREE BEST ROSES.—Fifteen of the most distinguished rose growers in England were separately asked to name 36 roses, and out of the number to designate 12 which they considered the best. The result was that of the 36 roses which were named, only three were on the record named by all as worthy to be placed on the first 12. These three roses ought to be universally known, as every one who cultivates flowers wants the best roses as a matter of course. They are: 1. Marechal Niel; 2. Baroness Rothchild; 3. Marie Baumann. It will be observed that at the head of the three stands Marechal Niel, sweetest of the sweet.

DEPARTMENT OF PUBLIC INSTRUCTION.

OFFICE OF CONTROLLER OF STATE,
SACRAMENTO, California, August 2d, 1872.

Hon. H. N. Bolander, Superintendent of Public Instruction:

SIR: In accordance with an Act of the Legislature of this State, approved April fourth, eighteen hundred and seventy, I have the honor to report as follows:

The securities belonging to the School Fund and held in trust by the State Treasurer consist of bonds of the State of California, bearing interest at the rate of seven per cent per annum, and amount to one million two hundred and three thousand five hundred dollars ($1,203,500).

The statement showing the money in the State Treasury subject to apportionment, and the sources from which the same was derived, is as follows:

One half of the Poll Taxes received since last report		$4,746 36
Interest on State School Lands		63,826 97
Property tax (ten cents on each one hundred dollars)		37,790 22
Interest on bonds held in trust		39,672 50
		$146,036 05
From which deduct for certificates of transfers paid in by County Treasurers on settlement	$232 00	
Amount paid for California Teacher	4,200 00	
Amount paid for binding books in office of Superintendent of Public Instruction	82 15	4,514 15
Subject to apportionment		$141,521 90

Very respectfully, your obedient servant,

JAMES J. GREEN, Controller.

APPORTIONMENT.

Total number of census children between five and fifteen years of age entitled to receive school money, 131,641. Amount per child, $1 07.

ALAMEDA COUNTY.—Alameda, 200; Alvarado, 116; Alviso, 79; Bay, 38; Brooklyn, 417; Centerville, 109; Cosmopolitan, 65; Eden Vale, 48; Encinal, 160; Eureka, 98; Fruit Vale, 105; Inman, 54; Laurel, 276; Lincoln, 30; Livermore, 107; Lockwood, 71; May, 61; Mission San José, 104; Mountain House, 29; Moury's Landing, 55; Murray, 50; Oakland, 1,792; Ocean View, 134; Palmyras, 47; Peralta, 122; Pleasanton, 116; Redwood, 29; San Lorenzo, 123; Stouey Brook, 40; Summit, 26; Suñol, 76; Temescal, 329; Townsend, 74; Union, 313; Vallecito, 66; Washington, 103; Warm Spring, 86. Total, 5,748; amount, $6,150 36.

ALPINE.—Franklin, 19; Everett, 33; Webster, 19; Lincoln, 52. Total, 123; amount, $131 61.

AMADOR.—Amador City, 113; Aqueduct City, 40; Buckeye Valley, 17; Buena Vista, 57; Clinton, 38; Drytown, 85; Fiddletown, 112; Franklin, 21; Forest Home, 34; Ione Valley, 93; Jackson, 223; Jackson Valley, 30; Lancha Plana, 84; Mountain Echo, 31; Milligan's, 42; Mountain Springs, 29; New York Ranch, 33; Onci-

da 81 : Puckerville, 44 ; Pine Grove, 49 : Sutter Creek, 261 : Stoney Creek, 21 ; Union Church and Miletown, 61 ; Upper Rancharia, 38 ; Volcano, 171 ; Williams', 43 ; Willow Springs, 37 : Washington, 93. Total, 1,981 : amount, $2,119 67.

BUTTE.—Bangor, 38 ; Butte Valley, 80 ; Bidwell, 27 : Cañon Creek, 29 ; Central House, 34 ; Cherokee, 134 : Chico, 580 ; Clipper Mills, 25 ; Dayton, 74 : Delaplain, 35 ; Eureka, 39 ; Evansville, 34 ; Forbestown, 74 ; Franklin, 22 ; Hamilton, 64 ; Kimshew, 54 ; Live Oak, 46 : Lone Tree, 39 ; Last Chance, 31 ; Manzanita, 29 ; Meridian, 72 : Messella, 33 ; Morris Ravine, 32 ; Mountain Spring, 53 ; Mud Creek, 42 ; Oroville, 303 ; Oregon City, 46 ; Pine Creek, 64 ; Rio Seco, 67 : Rock Creek, 28 : Salem, 30 : Stoneman, 27 ; Upham, 21 : West Liberty, 61 : Wyandotte, 82 ; Wyman's Ravine, 35 ; York, 12 : Webster, 39 : Union, 23 ; Lovelock, 48. Total, 2,606 : amount, $2,788 42.

CALAVERAS.—Angels, 182 : Altaville, 134 ; Black Hill, 49 ; Brushville, 90 ; Cammanche, 92 : Copperopolis, 125 ; Chili Gulch, 83 : Cave City, 44 : Campo Seco, 98 ; Douglas Flat, 46 : Eureka, 53 : Fourth Crossing, 70 : Mokelumne Hill, 209 : Murphy's, 170 : Mosquito Gulch, 18 ; Negro Gulch, 53 ; Pleasant Springs, 17 : Petersburgh, 77 : Sheep Ranch, 32 ; San Andreas, 168 : Spring Valley, 21 : Salt Spring Valley, 44 : Telegraph City 70 : Upper Calaveritas, 44 : Vallecito, 81 : West Point, 70 : Washington Ranch, 39 : Palamo, 57. Total, 2,239 : amount, $2,395 73.

COLUSA.—Colusa, 223 : Indian Valley, 49 : Ashton, 39 ; Stoney Creek, 47 : Webster, 29 ; Black Butte, 12 : Dry Slough, 80 ; Marion, 46 : Central, 27 : Newland, 61 : Mountain, 30 : Washington, 50 : Plaza, 49 : Bridgeport, 33 : Grindstone, 24 : Jackson, 51 : Union, 55 : Jacinto, 41 ; Antelope, 44 : John's, 27 : Butte Creek, 15 ; Prairie, 28 : Franklin, 70 : Fair View, 53 : Grand Island, 73 : Bear Valley, 56 ; Freshwater, 86 : Princeton, 90 ; Willow, 62 ; Montgomery, 41. Total, 1,594 : amount, $1,705 58.

CONTRA COSTA.—Alamo, 47 : Amador, 18 ; Antioch, 131 : Alhambra, 46 ; Bay Point, 59 ; Briones Valley, 53 : Carbondale, 118 : Central, 50 ; Concord, 97 ; Danville, 44 : Deer Valley, 33 : Excelsior, 78 ; Eden Plain, 81 ; Green Valley, 46 : Iron House, 36 : Lafayette, 52 : Liberty, 77 : Lime Quarry, 68 ; Lone Tree, 48 : Martinez, 171 : Moraga, 37 : Morgan Territory, 39 : Monte Diablo, 106 : Mount Pleasant, 78 : Oak Grove, 61 : Pinole, 78 : Pleasant Hill, 45 ; Roideo Valley, 31 ; San Ramon, 62 ; San Pablo, 242 : Somersville, 150 : Sycamore Valley, 54 ; Tassajara, 57 : Willow Springs, 46 ; Pacheco, 123. Total, 2,562 : amount, $2,741 34.

DEL NORTE.—Crescent, 152 ; Rowdy Creek, 36 : Bradford, 40 : Happy Camp, 30 : Lincoln, 33 : Ocean, 15. Total, 306 ; amount, $327 42.

EL DORADO.—Buckeye Flat, 60 : Bear Creek, 25 ; Blair's, 61 : Carson Creek, 22 : Cold Springs, 31 ; Coloma, 124 ; Coon Hollow, 61 ; Diamond Springs, 61 : El Dorado, 158 ; French Creek, 44 ; Garden Valley, 30 ; Greenwood, 45 : Georgetown, 160 ; Green Valley, 35 : Gold Hill, 86 ; Indian Diggings, 28 : Jay Hawk, 55 : Kelsey, 52 ; Latrobe, 77 ; Missouri Flat, 25 ; Mountain, 32 : Mount Aukum, 52 : Musquito, 13 ; Natoma, 6 : Nashville, 37 : Negro Hill, 16 : Newton, 35 : Oak Hill, 85 ; Pilot Hill, 38 ; Placerville, 375 ; Pleasant Valley, 65 ; Reservoir, 64 : Salmon Falls, 39 ; Smith's Flat, 39 : Spanish Dry Diggings, 21 : Tennessee, 58 ; Uniontown, 51 ; United, 51 ; Wild Goose, 12. Total, 2,332 : amount, $2,495 24.

FRESNO.—Lake, 44 ; Kingston, 45 ; Scottsburg, 51 ; Centerville, 61 : Hazleton, 57 ; Fancher, 13 : Dry Creek, 76 ; Mississippi, 25 : Millerton, 113 : Fresno, 53 ; Chowchilla, 54 : Arcola, 23 ; Penoche, 63 ; New Idria, 105 ; Washington,—; Squaw Valley,—. Total, 813 ; amount, $869 91.

HUMBOLDT.—Mad River, 61; Union, 237; Eureka, 406; Peninsula, 15; Bucksport, 91; Salmon Creek, 33; Table Bluff, 53; Pacific, 27; Slide, 42; Eel River, 91; Hydesville, 104; Yager Creek, 59; South Fork, 87; Van Dusen, 52; Grizzly Bluff, 81; Island, 56; Ferndale, 71; Centerville, 32; Bear River, 28; Mattole, 103; Upper Mattole, 43. Total, 1,772; amount, $1,896 04.

INYO.—Bishop Creek, 59; Independence, 28; Lone Pine, 76; Milton, 26; Round Valley, 25; Union, 41. Total, 255; amount, $272 85.

KERN.—Havilah, 35; Kernville, 35; Linn's Valley, 117; Kern Island, 135; Tehachipa, 90. Total, 412; amount, $440 84.

KLAMATH.—Klamath, 66; Trinidad, 114; Orleans, 62. Total, 242; amount, $258 94.

LAKE.—Sulphur Spring, 25; Cinnabar, 18; Morgan Valley, 20; Burns Valley, 36; Lower Lake, 88; Excelsior, 36; Loconomi, 62; Rincon, 44; Uncle Sam, 52; Kelsy Creek, 47; Big Valley, 65; Lakeport, 75; Pleasant Grove, 70; Blue Lake, 40; Upper Lake, 113; Batchelor Valley, 33; Cobb Valley, 50; Middletown, 68; Spruce Grove, 24. Total, 966; amount, $1,033 62.

LASSEN.—Susanville, 194; Richmond, 21; Susan River, 43; Janesville, 31; Soldier Bridge, 10; Lake, 34; Milford, 35; Long Valley, 25; Willow Creek, 25. Total, 418; amount, $447 26.

LOS ANGELES.—Alameda, 88; Azuza, 82; Anaheim, 275; Ballona, 100; Bog Dale, 95; Bolsas Grande, 43; Brooklyn, 81; Cinega, 110; El Monte, 152; Fair View, 33; Green Meadow, 157; La Puenta, 152; La Dow, 52; Los Angeles, 1,780; Los Nietos, 169; Maizeland, 80; New Port, 32; New River, 80; Old Mission, 71; Palomares, 70; Rowland, 62; Santa Anna, 272; San Antonio, 135; San Fernando, 70; San Gabriol, 174; San Juan, 162; San José, 61; San Pedro, 116; Silver, 84; Solidad, 113; Spring, 63; Wilmington, 123. Total, 5,137; amount, $5,496 59.

MARIN.—American Valley, 21; Aurora, 66; Bolinas, 30; Bay, 64; Chileno Valley, 50; Clark, 22; Dixie, 214; Estero, 40; Franklin, 30; Garcia, 50; Halleck, 42; Laguna, 19; Nicasio, 86; Novato, 70; Olema, 35; Point Reyes, 25; Roso Landing, 50; Richardson, 37; San Rafael, 277; Saucelito, 69; San Quentin, 32; San Antonio, 32; Tomales, 53. Total, 1,414; amount, $1,512 98.

MARIPOSA.—Mariposa, 119; Hornitos, 185; Coulterville, 85; Bear Valley, 117; Quartzburg, 51; Princeton, 22; Sherlocks, 36; Sebastopol, 52; Cathay's Valley, 122; Elk Horn, 31; Yosemite, 32; Granite Springs, 19; Merced Falls, 65. Total, 936; amount, $1,001 52.

MENDOCINO.—Anderson, 83; Big River, 76; Buchanan, 161; Cahto, 47; Capella, 21; Casper, 37; Central, 57; Comntz, 58; Coyote, 27; Cuffey's Cove, 53; Eel River, 57; Fish Rock, 21; Gaskill, 60; Gualala, 22; Indian Creek, 22; Little Lake, 90; Little River, 36; Long Valley, 83; Mal Pas, 18; Manchester, 95; Mill Creek, 56; Navarro, 46; Noyo, 25; Oriental, 60; Potter Valley, 59; Rancharia, 69; Red Wood, 63; Round Valley, 145; Sanel, 113; Sherwood, 72; Ten Mile River, 56; Union, 62; Ukiah, 308; Upper Little Lake, 108; Walker Valley, 19. Total, 2,385; amount, $2,551 95.

MERCED.—Snelling, 152; Merced Falls, 99; Jeffersou, 90; Eden, 29; Pioneer, 26; Washington, 36; Fair View, 30; Bear Creek, 30; McSwain, 42; Monroe, 45; Lone Tree, 58; Los Baños, 85; Clay, 48; Plainsburg, 17; Madisou, 22; Mariposa, 49; Hopeton, 73. Total, 931; amount, $996 17.

MONO.—North Antelope, 14; Antelope, 28; Bridgeport, 23; Beuton, 13. Total, 78; amount, $83 46.

MONTEREY.—Alisal, 73; Carneros, 76; Carmello, 127; Carrollton, 69; Castroville, 159; Fair View, 77; Hollister, 219; Jefferson, 166; Lindley, 104; Live Oak, 43; Long Valley, 57; Mountain, 64; Monterey, 408; Natividad, 115; Oak Grove, 39; Pacheco, 46; Rineon, 33; San Felipe, 11; San Francisco, 141; San Juan, 404 Spring, 40; Springfield, 48; San Benito, 72; Santa Rita, 125; Salinas City, 193 Soledad, 104; Santa Anna, 70; Tembladera, 34; Washington, 91; Tres Pinos, 61. Total, 3,272; amount, $3,501 04.

NAPA.—Buchanan, 86; Beryessa, 41; Bennett, 57; Carnaros, 30; Calistoga, 122; Childs, 37; Cherry Valley, 14; Capell Valley, 28; Childs Valley, 29; Franklin, 23; Golden Valley, 24; Howard, 37; Jefferson, 35; Liberty, 38; Lodi, 49; Mountain, 27; Napa City, 151; Oakville, 28; Oak Grove, 40; Pope Valley, 37; Putah, 21; Redwood, 58; Ray Cañon, 23; St. Helena, 204; Soda Cañon, 36; Salvador, 31; Sulphur Springs, 6; Suscol, 50; Tucker, 39; Upper Pope Valley, 39; Vineland, 47; Wooden Valley, 16; Yount, 51. Total 1,854; amount, $1,983 78.

NEVADA. Alison Ranch, 200; Birchville, 59; Blue Tent, 28; Bear River, 24; Chalk Bluff, 59; Clear Creek, 34; Cherokee, 71; Columbia Hill, 47; Eureka, 85; Forest Springs, 228; French Corral, 60; Grass Valley, 949; Graniteville, 39; Indian Springs, 43; Kentucky Flat, 68; Little York, 37; Lime Kiln, 40; Liberty Hill, 29; Lake City, 23; Moore's Flat, 74; Mooney Flat, 37; Nevada, 638; North San Juan, 170; North Bloomfield, 64; North Star, 97; Oakland, 134; Omega, 36; Pleasant Valley, 35; Quaker Hill, 25; Rough and Ready, 81; Relief Hill, 26; Spencerville, 35; Sweetland, 84; Selby Flat, 22; Truckee, 187; Union Hill, 104; Washington, 65; Willow Valley, 35. Total, 4,072; amount, $4,357 04.

PLACER.—Auburn, 160; Bath, 52; Blue Cañon, 24; Coon Creek, 68; Christian Valley, 25; Dry Creek, 20; Dead Wood, 12; Dutch Flat, 169; Damascus, 17; Excelsior, 35; Franklin, 40; Forest Hill, 154; Fair View, 11; Gold Hill, 28; Gold Run, 96; Iowa Hill, 98; Illinois Town, 173; Last Chance, 11; Lisbon, 21; Lincoln, 68; Lone Star, 24; Michigan Bluff, 63; Mount Pleasant, 38; Neilsburg, 35; New Castle, 41; Norwich, 31; Ophir, 80; Pleasant Grove, 20; Rattlesnake, 60; Rock Creek, 48; Rocklin, 99; Roseville, 60; Smithville, 28; Stewart's Flat, 48; Todd's Valley, 69; Union, 25; Wisconsin Hill, 38; Washington, 33; Yankee Jim's, 56. Total, 2,178; amount, $2,330 46.

PLUMAS.—Antelope, 26; Beckworth, 48; Crescent, 49; Greenville, 58; La Porte, 89; Mohawk, 28; Pilot Peak, 19; Pioneer, 42; Quincy, 65; Rocky Point, 20; Seneca, 46; Summit, 32; Spanish Peak, 46; Taylor, 69; Union, 23. Total, 660; amount, $706 20.

SACRAMENTO.—Alabama, 46; American, 13; American River, 91; Ashland, 33; Brannan, 20; Brighton, 33; Buckeye, 34; Carson Creek, 14; Center, 29; Davis, 21; Dry Creek, 14; Elk Grove, 54; Enterprise, 69; Excelsior, 43; Franklin, 51; Freeport, 13; Galt, 54; Georgiana, 20; Granite, 162; Grant, 35; Hicksville, 56; Homewood, 27; Hutson, 11; Jackson, 40; Knesville, 15; Kinney, 77; Laguna, 21; Lincoln, 33; Michigan Bar, 66; Mokelumne, 20; Natoma, 23; Oak Grove, 24; Onisho, 54; Pacific, 40; Pleasant Grove, 106; Point Pleasant, 56; Prairie, 32; Richland, 34; San Joaquin, 58; Sherman, 34; Stone House, 43; Sutter, 122; Sylvan, 64; Elder Creek, 49; Sacramento, 3,234; Union, 84; Viola, 70; Washington, 62; Walnut Grove, 26; West Union, 33; White Rock, 35; Wilson, 31. Total, 5,589; amount, $5,980 23.

SAN BERNARDINO.—Juaruppa, 69; San Salvador, 161; City, 302; Chino, 119;

Mission, 144; American, 50; Temescal, 47; San Timoteo, 76; Juappa, 51; Riley, 115; Warm Spring, 72; Central, 29; City Creek, 34; Mill, 26; Santa Anna, 55; Mount Vernon, 155; Cram, 34; Cucomongo, 36; Riverside, 57. Total, 1,632; amount, $1,746 24.

SAN DIEGO.—San Diego, 468; New San Diego, 327; East San Diego, 35; San Jacinto, 58; Milquatay, 85; Julian, 71; San Luis Rey, 120; Jannel, 49; Monument City, 45; National City, 38; Ballena, 49; Cajon, 49; Potrero, 21; Pawin, 61; Hope, 57; Montserrat, 51. Total, 1,584; amount, $1,694 88.

SAN FRANCISCO.—Total, 29,736; amount, $31,817 52.

SAN JOAQUIN.—August, 49; Athearn, 53; Alpine, 41; Brunswick, 55; Burwood, 44; Billota, 35; Calaveras, 28; Corral Hollow, 59; Castle, 44; Chartville, 27; Charity Dale, 29; Central, 10; Columbia, 25; Davis, 47; Douglas, 60; Dry Creek, 11; Delphia, 65; Elliott, 60; Elkhorn, 29; Everett, 63; Enterprise, 19; French Camp, 43; Franklin, 41; Fair View, 26; Greenwood, 48; Grant, 52; Henderson, 41; Harmony Grove, 58; Hutson, 13; Houston, 63; Linden, 105; Liberty, 56; Live Oak, 34; Lincoln, 25; Lone Tree, 26; Lafayette, 41; Lockeford, 73; Moore, 41; Madison, 35; Montezuma, 37; Mokelumne, 30; Mount Carmel, 38; McKarney, 53; New Jerusalem, 28; New Hope, 32; North, 85; Rising Sun, 16; Pacific, 23; Rustic, 27; River, 35; Stockton, 2,213; South, 28; Stanislaus, 12; Salem, 72; Shady Grove, 34; San Joaquin, 32; Telegraph, 61; Tulare, 50; Turner, 41; Union, 44; Valley, 81; Vineyard, 12; Van Allen, 40; Woods, 60; Wheatland, 28; Washington, 36; Wildwood, 52; Weber, 36; Willow, 67; Zinc House, 50. Total, 5,126; amount, $5,484 82.

SAN LUIS OBISPO.—Mission, 367; Arroyo Grande, 121; Santa Fé, 134; Excelsior, 31; Central, 54; Franklin, 85; Olmsted, 44; Mammoth Rock, 30; Santa Rosa, 46; Hesperian, 65; San Simeon, 137; Salinas, 122; San José, 93; Hope, 62. Total, 1,391; amount, $1,488 37.

SAN MATEO.—San Bruno, 75; San Mateo, 143; Belmont, 37; Redwood City, 402; Searsville, 104; Greersburg, 48; Laguna, 94; Half Moon Bay, 303; Purissima, 53; West Union, 19; Jefferson, 75; Millbrae, 35; Tunis, 51; San Gregorio, 37; Pescadero, 94; Belc, 89; New Year, 9; San Pedro, 44; Summit Springs, 22. Total, 1,734; amount, $1,855 38.

SANTA BARBARA.—Santa Barbara, 691; San Buenaventura, 323; Montecito, 104; Carpenteria, 207; Rafaela, 189; Santa Paula, 39; Pleasant Valley, 66; San Pedro, 76; Santa Clara, 46; Graciosa, 96; Briggs, 36; Hope, 62; Live Oak, 31; Ocean, 68; Pine Grove, 100; Ojar, 35; Sespe, 89. Total, 2,258; amount, $2,416 06.

SANTA CLARA.—Adams, 92; Alviso, 138; Berryessa, 51; Braly, 60; Burnett, 48; Calaveras, 26; Cambrian, 58; Carneadero, 61; Collins, 33; Encinal, 42; Evergreen, 93; Eagle, 36; Franklin, 62; Gilroy, 409; Gaudalupe, 72; Hamilton, 73; Hester, 271; Highland, 48; Hill, 237; Jackson, 68; Jefferson, 60; Laguna, 45; Lexington, 38; Lincoln, 56; Los Gatos, 58; Live Oak, 55; Llagas, 65; Mayfield, 166; Millikin, 51; Milpitas, 89; Morelaud, 72; Mountain View, 141; Mount Pleasant, 21; Midway, 59; New Alamaden, 133; Oak Grove, 102; Orchard Street, 79; Pala, 72; Pioneer, 109; Redwood, 92; Rhodes, 74; San Antonio, 49; Santa Clara, 593; San Felipe, 49; San José, 1,828; Sau Ysidro, 98; Silver Creek, 50; Summit, 16; Sierra, 44; Union, 65; Whiseman, 40; Willow Glen, 94. Total, 6,541; amount, $6,998 87.

SANTA CRUZ.—Santa Cruz, 765; Pajaro, 521; San Andreas, 49; Mountain, 56; Oak Grove, 171; Petroleum, 29; Happy Valley, 44; Hazel Brook, 13; El Jarro, 29

Rail Road, 36; Scott's Valley, 29; San Lorenzo, 62; Bay View, 80; Green Valley, 91; Carlton, 53; Soquel, 234; Union, 51; Summit, 37; Apton, 54; Ronehe, 108; Boulder Creek, 51; Vine Hill, 30; Agua Penrea, 27; Hill, 39; Casserly, 30. Total, 2,689; amount, $2,877 23.

SHASTA.—Shasta, 191; Millville, 181; French Gulch, 74; Buckeye, 18; Piety Hill, 52; Cañon House, 28; Roaring River, 22; Clear Creek, 19; Sacramento, 29; Eagle Creek, 53; Texas Springs, 15; Middletown, 24; Cottonwood, 17; Stillwater, 34; Fall River, 60; Oak Knoll, 21; Whiskytown, 27; Burney Valley, 38; Sierra, 75; Parkville, 56; Pit River, 15; American Ranch, 12; Little Cow Creek, 72; Clover Creek, 54. Total, 1,217; amount, $1,302 19.

SIERRA.—Alleghany, 72; Alpine, 23; Alta, 30; Antelope, 13; Butte, 27; Downieville, 196; Eureka, 29; Forest, 50; Gibsonville, 41; Goodyears, 52; Hardscrabble, 21; Loyalton, 60; Minnesota, 17; Morristown, 21; Mount Pleasant, 20; Newark, 28; Plum Valley, 27; Rocky Point, 27; Sierraville, 69; St. Louis, 42; Table Rock, 111; Union, 79; Washington, 29. Total, 1,084; amount, $1,159 88.

SISKIYOU.—Adin, 20; Ash Creek, 20; Berryvale, 25; Big Valley, 40; Bogus, 20; Butteville, 40; Cedar Park, 30; Cedarville, 44; Centre, 60; Cottonwood, 40; Deep Creek, 30; Douglas, 32; Eagleville, 42; East Fork, 24; Fall River, 20; Franklin, 25; Goose Lake, 30; Hawkinsville, 25; Hot Spring Valley, 30; Humbug, 20; Cañon Creek, 30; Klamath River, 20; Lincoln, 60; Little Shasta, 64; Meamber, 25; Mill Creek, 70; Moffat Creek, 22; Mount Bidwell, 20; Mount Shasta, 24; Nevada, 30; Oregon, 34; Oro Fino, 60; Pitt River, 60; Quartz Valley, 20; Round Valley, 35; Scott River, 54; Scott Valley, 100; Shasta Valley, 25; South Fork, 42; Stone Coal Valley, 28; Surprise Valley, 24; Table Rock, 50; Union, 20; Vineland, 30; Washington, 54; Willow Creek, 42; Yreka, 340. Total, 2,000; amount, $2,140 00.

SOLANO.—Alamo, 37; American Cañon, 28; Benicia, 414; Binghamton, 59; Bunker Hill, 60; Crystal, 156; Center, 57; Collinsville, 30; Dover, 32; Denverton, 24; Dixon, 72; Egbert, 68; Esmeralda, 46; Enterprise, 33; Fairfield, 119; Grant, 73; Green Valley, 65; Gomer, 28; King, 64; Mountain, 11; Maine Prairie, 66; Montezuma, 34; Oak Dale, '38; Owens, 48; Pitts, 67; Pleasant Hill, 10; Putah, 16; Pleasant Valley, 20; Rio Vista, 112; Rockville, 42; Round Hill, 36; Salem, 43; Silveyville, 140; Solano, 48; Suisun, 55; Tremont, 57; Ulatus, 102; Union, 51; Vallejo, 1,553; Wolfskill, 22. Total, 4,036; amount, $4,318 52.

SONOMA.—Alexander, 25; Alpine, 34; American Valley, 25; Bloomfield, 125; Bodega, 57; Burns, 27; Burnside, 43; Canfield, 29; Cinnabar, 58; Cloverdale, 165; Coleman Valley, 39; Copeland, 42; Court House, 421; Dry Creek, 28; Dunbar, 62; Dunham, 75; Eagle, 30; Enterprise, 37; Fish's Mill, 64; Free Stone, 61; Geyserville, 52; Grape, 53; Green Valley, 40; Guilford, 52; Guillicos, 10; Hall, 45; Hamilton, 80; Harvey, 73; Healdsburg, 327; Hearn, 18; Hill, 58; Independence, 39; Iowa, 45; Junction, 38; Knight's Valley, 32; Laguna, 80; Lafayette, 48; Lake, 38; Lakeville, 41; Lewis, 37; Liberty, 49; Lone Redwood, 43; Manzanita, 43; Mark West, 45; Mayacama, 27; Mill Creek, 46; Miriam, 112; Monroe, 26; Mountain, 26; Mount Vernon, 24; Oak Grove, 97; Occidental, 46; Oriental, 43; Pacific, 42; Payran, 76; Petaluma, 816; Piner, 41; Pleasant Hill, 51; Potter, 90; Redwood, 89; Rincon, 25; Russian River, 31; San Antonio, 48; Santa Rosa, 29; Scotta, 70; Sonoma, 239; Sotoyome, 74; Star, 25; Stewben, 43; Stewart's Point, 40; Stony Point, 42; Strawberry, 52; Tarwater, 54; Todd, 19; Walker, 36; Wallace, 47; Wallula, 109; Washington, 39; Watmaugh, 22; Waugh, 38; Wilson, 65; Windsor, 104; Wright, 40. Total, 5,776; amount, $6,180 32.

STANISLAUS.—Adamsville, 61; Booth, 28; Bachelor Valley, 45; Black Hill, 22; Belpassi, 32; Branch, 91; Bonita, 42; Buena Vista, 42; Davis, 39; Dry Creek, 22; Emery, 77; Empire, 35; Farm Cottage, 42; Fair View, 54; Garner, 35; Grant, 32; Haight, 37; Hoor's Ranch, 22; Jackson, 39; Jones, 69; Junction, 52; Jefferson, 40; McHenry, 40; Modesto, 100; Orestimba, 61; Paradise, 26; Row, 35; Risiug Sun, 25; Rhinhardt, 28; Tuolumne, 38; Washington, 62; White Oak, 41; White Crow, 28. Total, 1,445; amount, $1,546 15.

SUTTER.—Auburn, 34; Barry, 30; Bear River, 31; Brown's, 45; Buttesylvania, 22; Brittan, 53; Central, 67; Columbia, 21; Eagle, 38; Fair View, 19; Franklin, 21; Gaither, 46; Grant, 46; Illinois, 42; Jefferson, 30; Knight's, 28; Lee, 28; Lincoln, 44; Live Oak, 24; Marcum, 29; Meridian, 38; Myres, 20; Nicolaus, 42; North Butte, 29; Prairie, 18; Rome, 41; Salem, 29; Slough, 24; Sutter, 27; Union, 49; Washington, 30; West Butte, 44; Winship, 31; Yuba, 61; Vernon, 33. Total, 1,217; amount, $1,302 19.

TEHAMA.—Red Bluff, 277; Tehama, 96; Coast Range, 80; Raskenta, 43; Lassen,

51; Antelope, 65; Sander's Bend, 30; Floyd, 27; Cottonwood, 57; Sierra, 84; Stoney Creek, 19; Oat Creek, 30; Live Oak, 40; Montgomery, 28; Orion, 34; Toomer, 37. Total, 998; amount, $1,067 86.

TRINITY.—Weaverville, 146; Douglass City, 69; Junction City, 56; Lewiston, 39; Hay Fork, 57; North Fork, 54; Trinity Center, 24; Cox's Bar, 18. Total, 463; amount, $495 41.

TULARE.—Cottonwood, 74; Deep Creek, 38; Elbow, 26; Elbow Creek, 56; Fitzgerald, 27; Farmersville, 64; Kaweah, 109; Kings River, 32; Outside Creek, 21; Oak Grove, 47; Packwood, 17; Rock Ford, 38; Tule River, 104; Union, 47; Visalia, 113; Venice, 53; Vandalia, 126; Willow, 31; Grove, 174; Harmony, 31; Mountain View, 89; Pioneer, 85; Antelope, 40; Plain, 21; Pleasant Grove, 14; Sand Creek, 34. Total, 1,511; amount, $1,616 77.

TUOLUMNE.—Sonora, 456; Columbia, 421; Shaw's Flat, 62; Springfield, 40; Tuttletown, 113; Jamestown, 134; Poverty Hill, 80; Curtis Creek, 62; Summerville, 71; Confidence, 48; Montezuma, 49; Chinese Camp, 81; Don Pedro's Bar, 37; Green Springs, 44; Big Oak Flat, 121; Soulsbyville, 28; Willow Springs, 35. Total, 1,882; amount, $2,013 74.

YOLO.—Woodland, 319; Buchanan, 55; Washington, 124; Cottonwood, 65; Prairie, 37; Cache Creek, 45; Grafton, 129; Franklin, 30; Putah, 40; Buckeye, 40; Cacheville, 65; Grand Island, 15; Merritt, 43; Fillmore, 50; Plainfield, 71; Willow Slough, 22; Monument, 33; Pine Grove, 25; Cañon, 45; Union, 33; Woodland Prairie, 15; Richland, —; Sacramento River, 30; Monitor, 40; Eureka, 58; Gordon, 76; Capay, 48; Fairfield, 36; Enterprise, 26; Liberty, 36; Vernon, 21; Pleasant Prairie, 43; Fair View, 42; Spring Lake, 21; Yolo, 116; Mount Pleasant, 26; North Grafton, 56; Clover, 49; Montgomery, 16; Lisbon, 24; Haight, 39. Total, 2,108; amount, $2,255 56.

YUBA.—Bear River, 80; Brophy's 36; Brown's Valley, 47; Buckeye, 33; Cordua, 38; Dobbin's Ranch, 36; Elizabeth, 42; Garden Valley, 21; Greenville, 23; Hansonville, 20; Honcut, 37; Indiana Ranch, 51; Junction, 19; Linda, 50; Long Bar, 24; Marysville, 930; McDonald's 20; New York, 103; Oak Valley, 33; Oregon House, 58; Park, 45; Peoria, 32; Plumas, 62; Rose Bar, 127; State Range, 93; Spring Valley, 49; Strawberry Valley, 35; Timbuctoo, 91; Virginia, 41; Woodville, 7; Yuba, 55. Total, 2,338; amount, $2,501 66.

HENRY N. BOLANDER,
Superintendent Public Instruction.

BOOK NOTICES.

SWINTON'S WORD BOOK OF ENGLISH SPELLING, ORAL AND WRITTEN. Designed as an Introduction to Word Analysis. New York: Ivison, Blakeman, Taylor & Co. 1872.

This is Part I. of Swinton's Word-Book Series. It is seldom that a new book receives so warm a welcome from all classes and kinds of teachers as this little Word-Book has been greeted with. Outside of school, hard-headed, practical business men are still warmer in its praise, on account of its *practical* character. Typographically, it is the neatest book of the kind ever put out in this country. The combination of Oral Spelling and Written Spelling, the grouping of common words known to children, the easy and simple way in which Analysis is introduced, the short lessons in Abbreviations, names of persons, French phrases and Latin phrases, the monthly, quarterly, and yearly reviews, the classification of Anglo-Saxon prefixes and suffixes, the grouping of words under Latin roots, and other minor features, strike the eye on even a cursory examination. We close by letting Professor Swinton speak for himself in his preface:

"Learning to spell the English language correctly is the most difficult task of school life. Hence correct spelling is rightly regarded as a sign of culture, and bad spelling as indicating a lack of it.

"Orthography cannot be taught in twelve easy lessons: it can be acquired only by hard study. It is true that the spelling of many words is learned by pupils from the reading lessons; but these lessons, valuable as they are, need to be supplemented by a special text-book for special study. The Word-Book is neither a "Primary Speller" nor a Dictionary. It omits the alphabet and the "ab ab's" on the one hand, and on the other, quite a number of sesquipedalian words common to all old-time "spelling-books."

"It is designed to precede the author's class-book of Word-Analysis (though perfectly suited for use by itself), and is adapted to ungraded schools, and to the lower classes of grammer schools.

"Spelling is the *leading* idea: but at the same time a foundation is laid for the subsequent study of words and of language.

"Some of the technical points of superiority claimed for the Word-Book over the old-style "spelling-books" are:

"1. Short lessons.

"2. A careful division of lessons into written spelling and oral spelling.

"3. A specific division of lessons into monthly and yearly sections.

"4. Systematic monthly, yearly, and general review lessons, by means of which the spelling of the more difficult words is secured by continued repetition.

"5. A careful arrangement of words in Section I. with reference to the vowel sounds, as an aid to correct pronunciation.

"6. A distribution in Section I. of short lessons, including common abbreviations and given names of persons.

"7. A classification in short lessons of the names of common objects, and of words used in various trades and occupations.

"8. A classification of words with reference to certain leading ideas, and the use of the principle of association of ideas as an important auxiliary to definitions and discriminations.

"9. Particular attention to the vocabulary of every-day life, not omitting colloquial words and Americanisms.

"10. A distribution in short lessons of French and Latin words and phrases in common use in the daily press.

"11. The introduction of a simple method of word-analysis, with reference to Saxon and classical roots, prefixes and suffixes. The main object of these lessons is the orthography, but at the same time the pupil will get at the *drift* of the meaning of the derivative words.

"12. The *practical* character of the work, which aims to set forth, not the tens of thousands of "long-tailed words in *osity* and *ation*," but the actual vocabulary used in speaking and writing.

"There seems to be a fair field for a text-book more in harmony with the spirit of modern philology than the old-fashioned "spelling-books." The Word-Book is submitted to the judgment of educated teachers with the hope that it may secure correct English spelling, and at the same time awaken an interest in the *study* of words."

S.

SWINTON'S WORD-ANALYSIS. New York: Ivison, Blakeman, Taylor & Co. 1872. San Francisco: Payot, Upham & Co. 8vo. p. 125. Price, 40c. (Adopted by the State Board of Education for use in the public schools of California.)

This book fully meets the expectations of teachers concerning it. It strikes out a new path in the study of words. It has already been introduced into nearly every Normal School of the Eastern States. Nearly every teacher of the higher grades in the City of New York introduced it into school as soon as it made its appearance.

Swinton is a thorough master of the English language. He understands Anglo-Saxon, and digs down at once to the primary strata of our mother tongue. He does not present us with a compendium of English, Latin and Greek dictionaries, to be crammed into the heads of children, but singles out the most striking points of word-history and formation, and puts them into clear, condensed, and well-arranged statements.

The first part of this book is devoted to *English* prefixes, suffixes and derivations, with copious exercises on the words which common people and common children use

every day of their lives. They are such exercises as children take hold of with eagerness and delight.

The arrangement and treatment of Latin roots is peculiarly happy. It is not like Town's Analysis, a crude mass of undigested matter, but a clear and simple arrangement of words that any child or any teacher, having no knowledge of Latin, can easily understand. Synonyms are well treated of, and the proper *use* of words in sentences is made prominent throughout the whole book.

This little work ought to go into the first and second grade classes in all the larger towns and cities of the State. It is already used in the schools of San Francisco, Oakland and San José.

The State Board of Examination has notified teachers throughout the State that all examinations in "*Defining*" will hereafter be based on this book. We cannot better close this brief notice than by letting Professor Swinton speak for himself, as he does in the preface:

"If the study of Word-Analysis has not yet the assured and definite place it should by rights have in our ordinary school course, we may perhaps find the reason in the lack, thus far, of text-books technically constructed with a view to such simplification and graduation of the study as are required to meet the needs of elementary instruction. There is, at least, a wide and growing realization of the fact that the study of the English language is very inadequately provided for in the old system, which deals but with the *forms* of our native speech, and does not even touch its *substance*. The barrenness of the ancient grammatical training is too notorious for it to be possible that it should long retain its usurped primacy as the *sole* means of linguistic discipline. Formal grammar will not lose its place, and should not lose its place; but we may well believe that it will undergo such a re-adjustment as the enlarged modern views demand—at any rate, that it shall not displace other branches of the study of English that are equally important and far more fruitful. Theoretically, the study of the English language embraces three departments:

1. The study of the English vocabulary—Word-Analysis.
2. The study of the structure of English—Mixed Grammar and Composition.
3. The study of English forms—Grammar.

"The Graded Word-Book has for its object to supply a practical working manual, treating of the *first* department of the study of our language—namely the study of the *English vocabulary*. It presents three prominent points of peculiarity that distinguish it from all previous text-books of etymology:

"1. It is so graded that part I. deals exclusively with *English* primitives and their derivatives. On this head little will need to be said in justification. It will probably be conceded by the majority of teachers that the main obstacle to the utility of existing class-books of etymology arises from the fact that they assume on the part of the pupil a knowledge of classical roots and forms which it is impossible he should possess. The author believes that the whole logic and rationale of word-formation may be amply illustrated without going beyond simple English and Saxon primitives. When once the real nature of the formative elements and the philosophy of word-building have been mastered by the scholar he will advance with pleasure and profit to the study of Latin and Greek derivatives. Accordingly, all classical roots are relegated to part II.

"2. The treatment of the Latin derivatives in part II. presents a new and important feature, to wit: the systematic analysis of the structure and organism of derivative words, together with the statement of their primary meaning in such form that the pupil inevitably perceives its relation with the root, and in fact *makes* its primary meaning by the very process of analyzing the word into its primitive and its modifying prefix or suffix. It presents, also, a marked improvement in the method of approaching the definition—a method by which the definition is seen to *grow out of* the primary meaning, and by which the analytic faculty of the pupil is exercised in tracing the transition from the primary meaning to the secondary and figurative meanings—thus converting what is ordinarily a matter of rote into an agreeable exercise of the thinking faculty.

"3. The third point of novelty in the method of treatment is presented in the copious practical exercises on the *use of words*. It is believed this feature will read-

ily commend itself to all practical teachers; and accordingly, the author refers the schoolmaster or schoolmistress to an examination of those exercises themselves. The experienced instructor very well knows that his scholars may memorize endless lists of terms and definitions without having any realization of the actual living power of words. Such a realization can only be gained by *using* the word—by turning it over in a variety of ways, and by throwing upon it the side-lights of synonym and contrasted word. The method of thus utilizing English derivatives gives a study which possesses at once *simplicity* and *fruitfulness*—the two desiderata of an instrument of elementary discipline.

"The prominent points in the GRADED WORK-BOOK are:

"1. The clear and simple method of word-analysis and definition.

"2. The practical exercises in spelling, defining, and the *use of words* in actual composition.

"3. The adaptation of the manual, by its progressive character, to the needs of the several grades of public and private Schools.

S.

SWINTON'S FIRST LESSONS IN OUR COUNTRY'S HISTORY. New York: Ivison, Blakeman, Taylor & Co. 8vo. pp. 200. San Francisco: all the booksellers. Price, 75 cents.

This little volume realizes our ideal of what a primary U. S. History ought to be. It is printed in large type. It is handsomely illustrated, not by meaningless daubs of horrid looking heads of badly decapitated historic myths, but by original designs sketched by the best artists in America; such as "*Indian Life and Barbarities*," p. 26; "*The Plains of Abraham*," p. 63; "*Fight at the Liberty Pole, New York*," p. 73: "*Valley Forge*," p. 92; "*Daniel Boone in Kentucky*," p. 127; "*The Capture of New Orleans*," p. 173; "*Battle of Gettysburg*, p. 179; all executed in the highest style of art, are something entirely new in "Primary Histories."

The questions are printed in small type on the *margin*, so as not to break up the paragraphs, but at the same time to be under the eye of the pupil. The plan of the book is a series of well colored wood pictures of the prominent points of our country's history, instead of the bare-boned skeleton of dates and events, which there is of most of the "Primary Histories." The headings of some of the chapters illustrate this: *Part II.* 1. WHY THE COLONIES REVOLTED. 2. CAMPAIGNES AND BATTLES OF THE REVOLUTIONARY WAR. 3. GREAT MEN OF THE REVOLUTION. 4. A REVIEW LESSON. *Part III.* GROWTH OF OUR COUNTRY. THE GREAT WEST.

The great charm of the book, next to its plan, is the style in which it is written. Swinton is not afraid in plain English, just as educated and sensible people talk. The terse, short sentences, bristling with Anglo-Saxon words, is a most refreshing relief from the stilted, affected, wordy platitudes that characterize so many of our American text-books.

As a model of style to be put before school children, the work is of great value. This is the way he puts things: Page 74. 5. "But besides this deep cause, there was another reason why the Americans revolted. They said they would not submit to certain unjust laws made by the English. 6. The British rulers, so as to get money out of the people of the colonies, passed a law that no writing, such as a note or bond or deed, should be considered good in the courts unless it was written on paper that was stamped. The stamped paper had to be bought at a good deal of cost, and this was called "the Stamp Act." Page 150: HENRY CLAY.—"The little schooling he got was in a log cabin; but soon his genius showed itself. He was elected to the Senate, and rose to have a commanding voice there. When he proposed the "compromise bill," his friends said it would lessen his chances for the presidency. "I would rather be *right* than be *President*," was Clay's noble reply.

His manners were peculiarly winning, and no statesman was ever more loved. He died the same year as Webster.

Page 188: THE REBELLION. 80. "The principal *cause* of the war was the abolition of slavery. This has proved a benefit to the people of the South." 81. "Another good effect of the war is, that it has brought the people of the North and the South to understand each other better and respect each other more than they ever did." 82. "The war was very costly, both in treasure and in blood. At its close the North had a debt of nearly three billions of dollars. The finances of the South were utterly ruined." 83. "On the Union side, it is estimated that three hundred thousand men were either killed in battle or died from disease. Four hundred thousand more were crippled for life. It would be a low estimate to say that on both sides over ONE MILLION OF MEN were either killed or received wounds during the war!" 84. "But we must remember that above all the war saved the *Union*, which is far beyond the price of money or of lives!"

Page 198. "On the 4th of July, 1876, the Republic will have seen a *century* of growth. And what a growth it has been! The thirteen stars in our flag have increased to thirty-seven. The three millions of population have swelled to forty millions. The area of settlement, widening beyond the narrow limits of the Atlantic sea-board, has stretched out until it covers the continent from ocean to ocean.

"Under the Constitution we have the best government in the world. Our free public schools afford to every child a good education, which is in itself a fortune. Though we must not think that we have no faults as a nation, it may fairly be claimed that no people are more upright, prosperous and happy than the Americans. The grand lesson taught by the history of the United States is *Patriotism*—that is, the love of our country."

This is what the Professor says in the preface about his own book:

"The second thing the author has aimed at is, to be simple in the mesh of presentation without falling into the prevalent sin of childrens' histories, to wit: silliness in point of matter. They misjudge the nature of the young mind who deem that a child does not prefer good sense to twaddle. What the pupil finds difficult is rarely the *thought;* it is generally an abstract mode of expression or an elaborate structure of sentence. On this head the author's ideal is on the title page—*to combine simplicity with sense.*" S.

THE PUBLICATIONS OF THE STATE GEOLOGICAL SURVEY OF CALIFORNIA.

The series of volumes and maps already published, or in preparation for publication, by the State Geological Survey, may be classified as follows:

I. TOPOGRAPHICAL MAPS. a. *Map of the whole State of California, and the adjoining one of Nevada*, on the scale of eighteen miles to an inch. This map is printed in colors, the water being blue, the plains light yellow, and the mountains a darker tint of brown. It will be especially useful as a map of general reference, and for the higher schools, academies and colleges. The character of the surface is well indicated by the peculiar method employed. This map is finished, so far as the State of California is concerned, and it will soon be ready for distribution.

b. *Map of Central California*, on a scale of six miles to an inch, in four sheets, of which two are done and a third in the engraver's hands. It will take about two years to complete the whole map, which is a work of a very elaborate character, giving the topography in considerable detail, and beautifully engraved. The four sheets are intended, when desired, to be put together into one map, or they may be had and used separately. Each sheet is about two feet square.

c. *Map of the vicinity of the Bay of San Francisco.* Scale two miles to one inch. This map was published in 1867, and a new edition is now in preparation, giving all the new railroad lines, and also the latest changes in ranch boundaries. It embraces all of San Mateo and Contra Costa, the principal portion of Alameda, Santa Clara, and Marin, and parts of Sonoma, Napa, Solano, and Santa Cruz counties.

d. *Map of the Yosemite Valley.* Scale half a mile to an inch. A detailed map of the valley for travelers' use.

e. *Map of the Sierra Nevadas adjacent to the Yosemite Valley.* Scale two miles to one inch. For the use of travelers in the High Sierras. A very elaborate map of the high mountain region of the State most likely to be visited by pleasure travelers, on which all the roads and trails are given, so that with this in his pocket the traveler may find his own way about the mountains.

f. *Map of the Mining Counties on the Western Slope of the Sierras.* This is on a scale of half a mile to an inch. It is now being drawn and got ready for the engraver. A very elaborate and extensive work, which will require two or three years more for its completion.

II. GEOLOGICAL MAP. It is proposed to issue a preliminary geological map of the whole State for convenient reference. This will probably be ready next year.

III. GEOLOGICAL REPORTS. Three volumes of the series of Geological Reports are now published. One of these is devoted to Geology, and the other two to Palæontology. The geological volume is a report of progress and synopsis of the field work from 1860 to 1864; it was published in 1865, and is illustrated by numerous fine wood cuts. Two more volumes of Geology are now in preparation, and these will bring up our knowledge of the geological structure of the State to the present date, and will also contain a large amount of information in regard to the economical geology of the State.

The two volumes of Palæontology contain descriptions and figures of the fossil shells of the California rocks. A third volume is contemplated, and is intended to embrace the fossil plants, the fresh water and land animals, such as the elephant and mastodon; and also the microscopic fossils, or those minute organisms which, though invisible to the naked eye, make up extensive beds of rock.

IV. NATURAL HISTORY REPORTS. One volume of the Natural History series is already published. This is devoted to Land Birds, and it is profusely and beautifully illustrated by nearly seven hundred wood cuts. A second volume, the Water Birds, is in process of publication. Other volumes are getting ready, especially one devoted to the shells and another to the botany of the State.

V. GUIDE BOOK TO THE YOSEMITE VALLEY. Three different editions of the Yosemite Guide Book have been published, of which two are now on sale, namely, one in 8vo. and another in 18mo., or pocket form. These are also illustrated by special maps.

THE

CALIFORNIA TEACHER.

OCTOBER, 1872.

VOL. X. SACRAMENTO. No. 4.

[*For the California Teacher.*]

ARIADNE.

A TALE FROM GRECIAN MYTHOLOGY.

[*Translated from the German by Mrs. Dr. Lane, formerly Principal of the Mason Street Cosmopolitan Primary.*]

THE only son of Minos, King of the Island of Crete, had been put to death by some Athenian youths, and, to atone for this, the City of Athens, in Greece, had been forced to submit to the ignominious penance of sending yearly seven youths, eighteen years of age, selected from their own sons, to Crete, there, shut up in an ingeniously constructed building, to serve as food for the Minotaurus, a monster that fed on human flesh. The wonderful structure was called the *Labyrinth;* it consisted wholly of intricate winding passages and cross passages. Whoever wandered therein became so confused by the turns of these walks that only by a miracle could he find his way out again. Into this labyrinth, once in every two months, was one of these youths brought, to be devoured by the Minotaurus.

For three years had Ægeus, King of Athens, fulfilled these mournful conditions; thrice had an Athenian ship brought to Crete seven youths eighteen years of age, and twenty-one families mourned each the loss of a son who had been sacrificed to the Minotaurus. For the fourth time the season approached

for the sailing of the ship which was to convey to Crete the unfortunate victims.

In this year Theseus, the only son of the King, had reached his eighteenth birthday; hence Ægeus experienced the anxiety of a father added to that of a ruler, for upon his son, too, the lot might fall, as, in fact, it did upon the decisive day.

On the very next day the ship which was to receive the youths lay, ready to sail, in the harbor; Theseus was with them, accompanied by his grief-stricken father. Among the other youths and their relatives was nothing but loud lamentations, but the eyes of Theseus flashed with manly spirit as he tore himself from his father and stepped aboard the ship, which soon brought them to the shores of Crete. Here an accident drew upon Theseus the attention of the daughter of King Minos; as the ship entered the harbor and was sailing by a steep and somewhat overhanging rocky cliff, covered with a growth of flowering shrubs, a wreath from above suddenly fell upon the head of the royal youth and rested there. While his companions looked upon this as a sign that he was destined to become a sacrifice, he considered it a token of his preservation, deliverance, and victory. "In this faith," said he, "will I wear this wreath upon my head till my fate shall be decided." "Thy faith shall not deceive thee!" a gentle voice from above seemed to whisper to him.

Conducted by the guardsman on watch, whom the innocence, noble carriage, and whole bearing of Theseus had prepossessed in his favor, into the presence of the King's daughter, the latter said to him: "Youth, as I leaned too far forwards towards thy ship, the wreath fell from my head and rested upon thine, and when I heard thy trustful words I made a vow to deliver thee. Take this clew, make fast the end at the entrance of the labyrinth, and, as thou walkest, let it unwind; thus, following it as thou again windest it up, it can serve as a guide for thy return." She then gave him further instructions to kill the Minotaurus, and added: "Heaven bless thy labor! But willst thou then deliver me from the consequences and dangers of my deed?" He promised it.

Theseus, at the appointed hour, entered the hapless place; but, true to the instructions received, soon after his entrance he

fastened the end of the thread to the rock and let it continually unwind. Thus he arrived at the misshapen creature's place of retreat.

Instructed by Ariadne, the King's daughter, he slew the monster; the dreaded Minotaurus lay at his feet, and, led by the thread of Ariadne's clew, Theseus returned through the thousand-fold windings.

Faithful to his promise, Theseus rescued Ariadne from the danger hovering over her head. As the assistance she had rendered Theseus could hardly remain a secret, the avenging consequences would fall upon her head alone; hence, at the very spot where the wreath had fallen from her head upon his, he took her on board the ship, which now, with all the rescued victims, was to return joyfully to Athens.

Seeking harbor from a storm, they landed upon the Island of Naxos, near which they found themselves. The storm broke, but passed over without harm, and Theseus gave instructions to depart. All were assembled—Ariadne alone was missing; notwithstanding the most careful search, she could not be found; they concluded that she was lost; but, fallen asleep in a dense thicket, search had failed to discover her; she herself had known nothing thereof. Only when the ship was in the distance did she awake; from the shore she saw it sail further and further away. Exhausted with sorrow and lamentations, she sank to the earth, to sleep and dreams. Yet was she not lost. Awaking, there appeared before her one of the immortals, home-returning from his beneficent and triumphal progress through the earth; his form was of immortal youth, and he was surrounded by the attendants with whom he usually showed himself upon earth. "That thou hast done, and thy fate," said he, "are known to me, but thou art worthy of a higher destiny than life among mortals can secure. Follow me into the realm of the immortals and become my bride!" Extending her hand to her deliverer, she followed him, while he took from her head the crown and threw it, as token of his godhead and witness of his marriage, to the heavens, where it shone forth in splendor as a brilliant constellation.

Noble women and mothers, let us contemplate and reflect

upon this story from our standpoint, where we consider everything in its bearing upon the development of mankind, where everything may find an allegorical meaning.

It was the noble nature and the sublime dignity of character shining boldly forth in the youthful Theseus which attracted and fastened the gaze of Ariadne upon him, at the same time inducing her to sacrifice herself to the vitalization and development of these virtues. In what new-born and well-formed child, dear mother, does not the same sublime character, the imperishable dignity of human nature, announce itself? Have not parents and lovers of children remarked upon it, that the total expression is more full of meaning in the very earliest days of life?

But experience and observation have taught us all that the future path in life of the child—of the young human being—is like Theseus' way of escape, dark, intricate, interrupted, and filled with struggles, and that the true emancipation of ourselves and our fellow beings from the rude and sensual powers of nature and from egotistic strife, is indeed an aim that may well be likened to that of Theseus, but which is, nevertheless, clearly discernible to the inner eye, to the soul's unobscured vision, to the self-possessed mind; ruin threatens him who, frightened at the obscurity, allows the inner light of discretion to become extinguished; ruin him who, seeing no external connection, no internal unity, suspects, believes, perceives, no inner concord; ruin him who would combat with the danger, ignorant of its nature and character.

Thus, honored mothers, thoughtful women, you already see portrayed the fate of the child now lying wrapped in its swaddling-clothes, but which is yet, in the future, to strive after true manhood. To look firmly and calmly in the eye of danger when it approaches, that it is to which our children must be educated; to know the nature of the danger that they may know how fitly to meet and oppose it, that it is which our children must be taught. But most important of all to which the ball and thread of Ariadne points, is that children must be taught to look upon life (as upon the ball) as a connected whole, not only in its completeness, but also in its separate phases and acts (as in the thread unwinding from the ball).

The mother's spirit, self-collected and self-collecting, comprehends this unity, contemplating life teaches that it is to be seized hold of and made manifest. The feeling of unity, the seeing and foreseeing of the complete connection of the whole, this exalts the individual powers and the self-confidence which adds to the dignity of man; this brings the divine gift of consciousness to repose in the unity of, to live and work with, the great connected whole; this gives courage to look with steady eye upon danger, discretion to oppose and overcome it.

Here, noble, painstaking mothers! here, in the picture of Ariadne, the deliveress, is clearly demonstrated what you are to do for your darling ones, would you so educate them as to prepare them for the labyrinthian way, for the conflict of life; teach—practice it—to hold fast to the high purpose of being, to the unity of life, to prove it in spirit, to verify it in act and deed. Thus, noble-minded women, in and through your own lives imparting to your children unity of life, you will become not only their educators and liberators, but also educators and liberators of mankind from the wasting power of uncultured nature and selfish passions—and behold! already beaming toward you from the blue dome of heaven, the radiant splendor of *your* crown of victory, the crown of Ariadne!

Do you, however, prefer to look upon your life, your destiny, your exemplar, in brighter purity, as mirrored in the, to us, more hallowed life of a Christian mother, yet here, too, you but find the same; respect, recognition, and fostering of human worth and dignity, consideration of, and attention to, the unity of life; and here, too, imperishable gratitude for a deed apparently transient, but reposing on the unity of the immortal life of man.

EXTRACT FROM "ARIADNE'S CROWN."

BY HERDER.

See, 'mong the stars, Ariadne's fair crown shines in bridal-like beauty;
Modest its luster;*
Emblem of woman's true glory, thou beck'nest to honor exalted.

Nature bestowing on each sex a destiny special,
Said to the man: "Protector be thou, and reign thou benignly;
Courage and strength are for this to thy portion allotted; th' gentler
Daughter received a more delicate gift from the mother, th' thread of
Prudence, to lead thereby man out of life's labyrinthian windings."
Silently added she greatness of soul and enduring affection.

"Sacredest treasures, the buds of creation, to thee are entrusted,
Foster and cherish the happier heirs of the ripening future;
Like Atalanta, soar to thy aim, leaving dangers behind thee;
Work without ceasing, and Hope be thy constant abiding companion."

Honor to woman! Freedom's her name! † in the field of her vision
End and beginning one glance comprehends, and the portal of egress;
Heroes despairingly how where her far-reaching eye sees deliv'rance:
Off'ring of self as a sacrifice, brings she, the victim, to rescue.

Lo, ye deliv'rers! behold Ariadne's bright jewels, and reach, oh!
Reach to bewildered and wandering mortals the thread of the lab'rinth.
Muse upon this! Educate! you are only girt with the power
Happiness' riches to give to the far-future vast generations.

* ARIADNE'S CROWN occupies a small space in the northern celestial hemisphere; it is a constellation easily distinguished, consisting of twenty-one stars; its greatest star is of the second maguitude, and is called the *Gemma* (The Gem).

† The German word *Frau* (woman) is derived from the word *frei*, meaning *free*.

[*For the California Teacher.*]

OUR DISTRICT LIBRARY SYSTEM.

For some years the California School Law has contained provisions requiring that a certain part of the State School Fund be set apart for the purchase of libraries for the use of schools and the people of the various districts of the State. The law, as it stands, provides that ten per cent. shall be so appropriated, if such ten per cent. do not exceed fifty dollars, when fifty dollars shall be appropriated, with an exception in the case of incorporated cities and towns; that the Trustees shall expend the money so set apart solely for the purchase of library books; and that if they neglect or refuse to invest the money, the County Superintendent shall do it for them.

The theory upon which these sections of the law are based is an admirable one. It recognizes the demands of children for intellectual employments during leisure hours; it aims to develop and cultivate a taste for reading of the right sort by prescribing the books that shall be perused, and it endeavors to bring within the reach of those whose means will not permit the purchase of an extensive, or perhaps even a small, library, the facilities for study and culture they may so much covet. All this is excellent. Public libraries are desirable institutions.

Their existence is an evidence of the enterprise and culture of any community in which they may be found. There is perhaps not a city of any prominence in the United States that has not its public libraries; and it is to be hoped that the day is not far distant when they will be not only public but free.

But upon our system are engrafted some evils. Tares will always grow with the wheat. Damaging parasites will invariably attach themselves. It is impossible were it important to enumerate all of these. In the present connection, I shall notice but one. From the facility with which books can be procured, there has resulted a habit of hasty indiscriminate reading that is almost as detrimental as though there were no habit at all. It is hardly necessary to repeat that he who reads most has not always the finest mind, nor is yet the best instructed. A comparatively few books will suffice for the study of thinking men. There is to-day too much reading and skimming, and too little study and thought.

Especially is this true in the case of children. Habits and tastes are developed and shaped in childhood. To children a small, well-assorted library becomes an absolute necessity. A few books of the right kind carefully read, and read not for the mere sake of reading, but to be remembered, are of infinitely more value than hundreds carelessly turned over and thrown aside to be forgotten. The "Life of Washington" and the "Life of Clay" were to Lincoln as a boy more precious than a score of "story books" could possibly have been. They had more real influence in shaping his character and molding his thought than any number of moral tales and *quasi* novels. So may each one recur to his own experience and recall a work of travel or biography read with keen and longing interest, because its name had been suggested by some watchful friend, or the hungering mind had sought solid food. Hence the tendency to increase our public school libraries to an inordinate size is as great a mistake as though they were abolished altogether.

But there are other evils consequent upon the present system. If we could be sure that all which the law appropriates were judiciously expended, even if the books purchased were not so freely circulated or carefully read as they might be, there would not exist so much cause for complaint. But we know that this

is not the case. The law as it stands, besides setting apart a certain fund and designating the object for which it shall be spent, says that "if the Trustees neglect or refuse to purchase such books, then it shall be the duty of the County Superintendent to expend the Library Fund to the credit of such district, and pay for the books on his own warrant." Here is a chance, and almost the only one the law affords, for shrewd Superintendents to make something by way of official speculation. More than one instance has come to my knowledge of a Superintendent investing the Library Fund in such a way. In every case there has been vexation and trouble. In no instance has the Superintendent given his personal attention to the selection of the books purchased; nor has he seen that they were delivered according to contract. It is impossible in the nature of things that he could; and therefore the power should be taken out of his hands. Worse than all this, about half of the libraries never get any benefit from purchases made, because the books selected are not adapted to the grade of school; or, sent to some irresponsible or indifferent person, become scattered and never reach the shelves of the library at all.

Another instance of the failure of the present system is to be seen in the case where the Trustees, not yet ready to procure their library by reason of lack of facilities for keeping it or some other obstacle, draw the money set apart for the Library Fund and deposit it with their bookseller until such time as they shall call for their books. In course of time, through change of Trustees or loss of records, the amount of money so deposited cannot be ascertained, and the district must at last take what the honesty or liberality of their bookseller dictates. This is no imaginary evil, but a wrong that has come within my personal observation.

Now there is a very simple remedy for all of these things. Let the law be changed so as to make it optional with the Trustees whether they will expend any money for library purposes or not; limit the amount which may be so expended to ten per cent. of the State Fund, if that limit be the most desirable one; and take the matter of expending the money entirely out of the hands of the Superintendent. The truth is that many of our districts have as yet very indifferent school houses, and every

dollar is needed, and in some cases will be for years to come, to provide suitable buildings and furniture; while others which are located in sparsely settled communities whose lands perhaps are not very productive and the people poor, need for purposes of tuition every dollar that can be made available. But, giving to Trustees the power to expend not more than a certain sum for the library whenever they deem it can be advantageously done, will give to each district a library just as soon as it will be of any substantial benefit to that district.

Besides that objectionable feature of the law which makes it obligatory upon Trustees to expend the money whether it is desirable or not, there is a defect in the law because it makes no provision for those cases where, after a number of purchases through a series of years, the library becomes large enough for present uses. In many cases the library soon becomes of sufficient size, and it is wholly unnecessary to expend the whole ten per cent. required. It may indeed be proper to make a few purchases of new books, but one per cent. of the State Fund may be amply sufficient. Under the present system, however, there is no choice, and Trustees must go on making purchases and lumbering the shelves with articles which represent most emphatically non-productive capital. In the city of San Jose there was expended last year for school library purposes the sum of $57 83. The gentlemen who constitute the Board of Education of that city are men of culture and sound judgment. They realize the importance of libraries as fully as any one else. But the city schools were already supplied, the money was needed for other purposes, and but a trifling outlay was made. The law should be such that Trustees in every district might act in the matter at their discretion.

I am heartily in favor of school libraries. I would have, if possible, in every district of the State a library conducted like one that I might mention in Santa Clara county. The library contains a very choice selection, to which of course the pupils of the school have free access. Attached to the school house is a small reading room, where may assemble those who, by payment of a small fee, have the privilege of the library. It thus becomes of inestimable value to the community. It forms an object of common interest, and will have great influence for

good. If such could be established everywhere the objections to the system would cease to have much weight. There would soon be created a thirst for knowledge that nothing but the truth itself would quench. That knowledge would assist its wonderful power; and every year would witness in an increased degree the growth of our people in refinement, culture and intelligence.

GEO. F. BAKER.

[*For the California Teacher.*]

WHAT SHALL OUR CHILDREN LEARN?

For some time past educators have been made to seriously think of a more intimate connection of our system of public schools with methods of moral and industrial culture. We are liable to err in considering the mere *elements* of education for education itself. The pupil who has gone through our common school course of study, and has perhaps graduated at a high school, is but poorly prepared to engage in the every-day practical pursuits of life. Whilst our scheme for intellectual culture in the elements of text book knowledge seems complete, the personal, social, and moral habits of pupils seem to be neglected somewhat. There is little, also, in the course of study to stimulate a desire for knowledge and practical engagement in some of the industrial arts. Whilst these pursuits are languishing in our country for want of cheap labor and skilled labor, our towns and cities are overrun with idle youths fast maturing into "hoodlums," bar-room loungers, gamblers, and such like. With plenty of work to be done and thousands of hands that might do it—hands that need the work, and cannot live honorably without it; and work that needs the hands and cannot be accomplished without them—is a problem easily answered, however difficult the solution may be. The answer is: Set them to work. The method of doing this is the puzzle of philosophers and humanitarians.

One of the first ideas our boys attain to is that they may become Presidents, or at least Congressmen. They fall to hacking imaginary cherry trees—become indoctrinated in some of the tricks of politicians. Honest, plodding labor is looked upon

with eontempt. They beeome hoodlums, whieh is but the tadpole state of our ehronic offiee-seekers, and every newspaper we take up has some item of misdemeanor eommitted by idle boys, and a long moral leeture to the guardians of public weal for allowing them to run at large.

Hoodlums of the gentler sex, but under other names, are not less frequent—sadly too many. That our girls should be required to know something of the industrial arts needs no argument from me in this day when womens' rights and wrongs are so eommon a theme on every tongue. It is evident our girls eannot all beeome teaehers, or milliners, or leeturers, or missionaries to India or China. Neither is it best that they should be used, however handsome it makes them appear, as walking maehines on which to display the latest styles of dry goods and jewelry. There is work for their hands to do—there are many of the industrial arts that women ean engage in as well, and often better than their brothers.

It is a proverb among the Prussians, truer than most proverbs, "Whatever you would have appear in the life of a nation, you must put it into its sehools." We feel and know that this is true in our own country. But do we reduce it to praetiee?

Our teaehers hold eertain certifieates entitling them to teach. They obtaiu these by answering a certain per cent. of questions, seareely one of whieh pertains to any moral or industrial eulture. I have seen some of these parehments, and the questions prepared by the Boards of Examiners, and all the qualifications that seem to be required of our teaehers pertain to eertain studies ealled arithmetic, geography, grammar, history, and the like. These things are good to put into the schools, but abstraetly they possess no life. They are but the rind of some good meat that should be within. That whieh should appear in the life of our nation, the simple virtues, industry, frugality, honesty, ete., are not taught by authority of law or inelosed in teaehers' eertifieates. The faet is, if we would legislate for the perpetuity of our free institutions, for the abatement of erime, or for anything else, we must adopt the method of Lyeurgus, the law-giver, who resolved the whole business of legislation into the edueation of the young. His laws remained in foree seven hundred years. Milton was impressed with this faet as

to Governments when he said: "To make the people fittest to choose, and the chosen fittest to govern, will be to mend our corrupt and faulty education." Sir Thos. Moore, referring to legislative faults, says: "Our law-makers first make thieves and then make laws to punish them, and that is about all that can be said."

James Anthony Froude refuses to admit that a transition from the old industrial education of past generations to the modern book education, is a sign of what can be called progress. Five out of six of us have to earn our bread by manual labor, and the apprenticeship, he thinks, to a trade, with the Lord's Prayer and the Commandments at its back, has not so far proven the least useful method. The *doing* of right alone teaches the value or the meaning of right, and religion can be no more learned out of books than seamanship, or soldiership, or engineering, or painting, or any practical trade whatsoever. An eminent educator of this country says: "That pupil is best educated who is best prepared to learn." I should add to that, "and no pupil is more than half educated who has not acquired a power to honorably earn his living at the end of his tutelage."

We look with a great deal of wonder at those who from "poor but honest parents," and industrial pursuits of the commonest sort, have risen to places of eminence. When we examine the list it is a long one, and embraces the most eminent persons of the world. Arkwright, Linnæus, Robert Peel, Humphrey Davy, Benjamin Franklin, Elihu Burritt, Governor Palmer, Erastus Corning, Senators Douglas and Wilson, Thurlow Weed, President Lincoln, and a host of like personages numerous through all ages.

Has it ever occurred to us to make a list of those who from *eminent* parents and no particular industry have sustained that eminence and become great and useful members of the human family? I fear the list would be shorter than we might at first suppose. These are the ones of all others that deserve applause. The world may not call them "self-made," but they are equally deserving of credit. Their temptations have been greater. Having ease and position, they have been tempted to become indolent, and to avoid the hardening and toughening processes of the world's hammer, anvil, and furnace. The fact is, every

one is "self-made" who is distinguished, whatever his opportunities or ancestry may have been.

May we not at times almost entirely overlook the true object of our free public schools? If our common school education is to stop with the mere acquirement of reading, writing, and mathematics, with some knowledge of language, we have gained little or nothing. We have simply educated at the expense of the State a portion of individuals to become perchance the more expert rascals. In 1868, of the 17,000 criminals in the United States, ninety-seven per cent. had never learned a trade. It may be that a large part of these criminals were illiterate. The educated ones were not caught; or, if caught, were not convicted. In this case a free school education served a double purpose—it freed the criminals of punishment, and the Government of the expense of their confinement! I will not endeavor to estimate the influence they still exert on society.

It seems to me the public school will only have accomplished a part of its object where the mere forms of the text books have been mastered. The maxim of the State should still be the old maxim to the fathers: "Give your son a Bible and a calling" —the Bible truths and morals as understood in the broad sense of Christianity, free from tradition or sectarian bias; and a trade by which an honest living may be obtained.

C. L. ANDERSON, M. D.

ACADEMY OF SCIENCES.

A regular fortnightly meeting of the California Academy of Sciences was held at the rooms on Clay street, September 2d. The attendance was unusually large, embracing several ladies, among whom was Mrs. Agassiz, the great attraction being the expected presence of the distinguished scientist, Professor Louis Agassiz. Not only were the seats in the assembly room filled, but the standing accommodations as well were entirely occupied, and quite a number were disappointed in gaining admission. Shortly before 8 o'clock the illustrious visitor entered the hall, accompanied by Professor Davidson, President of the Academy,

and other prominent members. He was looking hearty and jovial, none the worse for his long voyage at sea and arduous labors in the cause of science, extending continuously through a period of 260 days.

In introducing Professor Agassiz, who was received with great applause, the President remarked that he had cheerfully accepted the invitation to meet the members of the Academy, forbearing to plead the fatigue he must experience so soon after the completion of his voyage and trying labors. And the Academy must highly estimate the honor conferred in being the first to hear his voice after the termination of an expedition that had accomplished so much in scientific research.

REMARKS OF PROFESSOR AGASSIZ.

Mr. President and Gentlemen: It gives me very great pleasure to be among you this evening, and I can assure you that as long as I shall live I shall be proud to have met such a reception at your hands as has been tendered to me this evening. Twenty years ago, when your Academy was founded, I longed to come across the continent, and perhaps to stimulate and encourage those who were struggling in their efforts to organize a scientific body in a community which was then entirely engaged in gathering gold. My reverence for the Academy of Sciences of California has been growing since I have seen, through your published proceedings, that in a city which is so entirely absorbed by business you have raised the standard of intellectual culture; and as I have devoted my entire life, without regard to anything else, to the promotion of knowledge, I have felt that you were doing a good thing, not only for the City of San Francisco, not only for the State of California, but for the United States as a great empire, as a power among nations; for you show by your zeal, among the difficulties which surround you, that you mean, even if you should not succeed to the full extent that you desire, to keep up the spirit which leads forward in intellectual growth. Now, I hold that it is your mission to show to the western part of this continent that without intellectual growth there is no greatness for a State. It is that which you have to bring to the full understanding of the whole community. You are surrounded with wealth as no State ever

was. You have men among you who are richer than kings of the Old World, and yet I see you are still in close quarters. You have not rooms in which to display your acquisitions; you have not the means of making your pursuits inviting to the community at large, and with whom does it rest to foster these interests of intellectual growth? With those who have the means. Let them take the example of the rich men of Massachusetts. I know what they can do. I went single-handed to Cambridge, to teach natural history, twenty-five years ago. When I delivered my first lecture, there was not in the University a single specimen to illustrate what I had to say. And yet, a little band of students, feeling an interest in what they could learn in the lecture-room, and others, thought such a pursuit was worth encouraging, and by and by the idea arose that a museum would be of use, and the means were gradually forthcoming, at first sparingly in small contributions, but gradually more liberally in larger sums, until at this moment, after fourteen years only, the museum at Cambridge stands, in my estimation, without parallel in the world.

It may sound like an exaggeration, and yet I will explain how it is possible. The institutions of science in the Old World have grown through centuries. They have been founded upon the ideas which were developed by science in the course of time. They were organized with the means then at the disposal of the investigators of the time, and science has made such progress that now these great institutions are in a measure superannuated, because they cannot be rejuvenated. They are so organized that it is impossible in the halls of the British Museum or in the halls of the Jardin des Plantes, to introduce those appliances which modern research requires. Our little museum was started with the ideas of to-day, and has grown with them in consequence of that. Such materials only were collected as have an immediate bearing upon the questions of the time; and as science advanced those materials were increased in the direction in which progress was making. And there was a facility for that in the very organization of the whole institution; and that has been so felt by our citizens that they have extended to me every facility which I could wish for. I have had for the last five or six years all the means which I was capable of expending profit-

ably. And yet, you are richer than Boston—a great deal more so. You have a great many more men who could contribute in that liberal way to the organization of an institution which would benefit not only those interested especially in natural science, but which would make observers. This is what the world wants—not books to read, but men to learn what is not yet known. Those men cannot be educated in the school-room. They must be educated in Nature, among specimens, by the teachings of that thing which has not been explored now. Knowledge must be obtained, and from where are those materials to be forthcoming? The student has not time to go into the field and gather his materials for work. He must have such aid and must have such stores as would bring the facilities for study closer to his laboratory.

What would you think of the man who would raise himself his food when he is engaged in the law business or in the medical profession? You would think he was wasting his time. Now I say the scientific man is wasting his time or is obliged to waste his time when he is not provided with the appliances with which he can work and which he is capable of producing. And I hold it is one of the duties of those who have the means to help those who have only their head and who go to work with an empty pocket.

So I think that one of your duties, besides fostering and nursing the interest you individually feel for science, is to arouse that general interest in the community, which will make every true patriot, every lover of his State, every philanthropist, every man who has the heart to leave a good repute and to leave an honorable memory, desirous of contributing to your progress. Not only have you that before you, your own work and pleasure in the work, but you have also to help one of your institutions, which has already spread the good name of California everywhere where science is cultivated. Your geological survey is a model of scientific research. It has been conducted in a spirit and with a success which has cast a shadow over the geological survey of the Eastern States. There is not one—not that of Massachusetts, not that of New York, nor that of the younger States further west, but east of the Rocky Mountains—which can compare for beauty of execution, for accuracy of research,

for splendid generalization, with those volumes of your geological survey which have already seen the light and been given to the world. And if you can secure the continuation of that work to its completion, you will have done for your State and for science a good and an excellent work.

You have too to help your University that is growing. There was a time when it was said in Europe, that no American book was worth opening or reading. "Who reads an American book?" We have now books read all the world over. There was a time when we had to send our students abroad in order to complete their education, and when even our colleges gave them, at the best, only elementary culture. Now our colleges are taking a step forward—are making such progress, our institutions are improving in such a way that I hope to see the day, old as I am, when European students shall flock to our universities. There is a spirit of freedom which pervades study in America that is wanting in the Old World, where the professor, in order to keep up his head and be able to live and be supported by the government, has to be the servant of the Minister of Public Education, and do his bidding. Here we do the bidding of only our own consciences, and do the work as we think it ought to be done. And European students will learn that to add to their knowledge that spirit of freedom they must flock to our universities. And you are organizing one here which I hope will progress so fast that when we have attracted to the Eastern States some of the European students, they will soon be seen crossing the continent and coming to see you also. And do not be too short in your expectations. Do not look too near the present movement, but look forward, and that forward, however distant you think it now, will be at your feet before many years.

When I saw to-day, for the first time, San Francisco through the Golden Gate, I was amazed. I look upon it as one of the marvels of modern times, that there should be a city standing on these shores, so grand, so prosperous, so rich—and so young. And what you have achieved in material prosperity do not despair to achieve in intellectual growth in the same short time. If you will only put the shoulder to the wheel and have confi-

dence in yourselves that you can do it, you will achieve that as you achieved the other great result. (Great applause.)

Mr. Davidson.—I know the Professor needs no thanks from us for his kind words. He must feel such thanks as he sees them beaming from the countenances of each one here. (Applause.) I hope our new President of the University of California will favor us with a few words, for we have in him a man come among us with youth, ability and backbone, and these are the kind of men we want in our institutions. I introduce to you Professor Gilman, late of Yale College.

REMARKS OF PROFESSOR GILMAN.

Professor Gilman said: I cannot but regard it as a most happy omen that the first opportunity I have after coming here to take charge of your educational institution, of meeting with the citizens of this place is on an evening when you are assembled to pay homage and render greeting to one who brings the best culture of the Old World to bear upon the solution of the great problems which appertain to the New; when you are here to greet so eminent a man as he who has just addressed you. I can echo his words in a faint way, and take up a few of the thoughts he has dropped. He has told you that the museum at Cambridge is distinguished as the museum of to-day. Should it not be so with the University? Should it not be a university for the wants of to-day? Should not we use it for the great problems which belong to this generation, for the great future that is opening upon us? Should not we all unite to gather up the best of the past experience of every nation, the accumulations of all men before us, and bring them to bear upon our society, and upon, I trust you will allow me to say it, our own State of California? One other thought I should like to re-echo. Professor Agassiz has told you that the great want of science is observers, and the great want of society is men. Now, the object of the University is to turn out men, not narrow specialists, though they may be as eminent as possible in this or that department which they may pursue, but men of honest and earnest purpose, men of true wisdom, and that is what the University has before it. I will not prolong these remarks, but let me trust that the true utterances you have heard from the dis-

tinguished orator who has spoken to you, that you need an institution for to-day, and an institution for the training of men, may sink deep into all our hearts and inspire us all for the work which is to come. (Great applause.)

REMARKS OF PROFESSOR TORREY.

The venerable Professor Torrey, of Columbia College, New York, being present, responded to a call from President Davidson, as follows:

After the distinguished gentlemen who have preceded me, there remains but little for me to say. Those who know me are aware that for many years I have had the greatest desire to explore this great State. I may say that for many years I have had California on the brain. For a long time I never expected to see it, although I spent many years in investigating the collections of natural history, especially of botany, brought from California, as the various volumes of railroad explorations, etc., will show. Seven years ago I had the pleasure of coming here for the first time, and attending the meeting of this Society. That pleasure is now renewed under peculiar circumstances. So happy am I to meet my excellent friends and the gentlemen who have just addressed you. Now I may say my joy is no less than it was when I was here before. I have spent all my time without cessation, since I arrived, in examining the botanical productions of California. Although botany has occupied so much of my time, chemistry is my profession, and I have regarded botany as an amusement; yet my zeal in either study has not diminished, notwithstanding I am many years older than my good friend near me, who thinks he is advanced in years. I have been galvanized into making you another visit, and now I propose to remain longer and then return to work still more upon the flora of this State, hoping to add some material to the large work which is expected when the geological survey is completed. I have done already much toward it, and hope to do more before I am taken away. (Applause.)

RESULTS OF THE "HASSLER" EXPEDITION.

Professor Davidson said that in inviting Professor Agassiz to address the Society, he intimated to him that but a few words would be expected from him. He hoped, however, that before

leaving us, Professor Agassiz would say something on what has been accomplished by the expedition under his charge.

Professor Agassiz said: It may be thought egotistic in me to speak of what has been accomplished under my direction, but I may say that every officer and person connected with the ship, from the Captain to the sailors, contributed to the success of the expedition, rendering such help as made my labor an easy task and the journey a very profitable one. Dr. Steindachner, whose exertions have been so untiring, deserves special mention, as but for him the collection would not have been one-half so large. We had younger men, but none of more unwearied industry. Mr. Blake, Dr. Hill, and in fact all connected with the force worked diligently and efficiently, while everybody on board contributed to the success. Mr. Heald rendered great service in the collection of specimens of marine plants, although his legitimate duties were of an entirely different nature. Dr. Pitkin has also been of much service, and all have taken as much interest in forwarding the objects of the voyage as the party whose especial duty it was to carry those objects out. During the 269 days of the voyage we packed and sent home 243 boxes and barrels of specimens—nearly a barrel a day—the contents of each one of which would fill a handsome case, such a quantity that the trustees of the college would be obliged to put up additional buildings for their accommodation. It would be tedious to enter into details, but I may mention that the collection of specimens of fishes amount to over 20,000, and the specimens of various kinds in all over 100,000. They were not preserved in the old-fashioned way, dried and rendered nearly useless, but put in alcohol, over 3,000 gallons being used for the purpose. Thus preserved, the specimens may be dissected and analyzed with facility, and the collection will afford materials for years to come. We shall be able to contribute materially to the resources of scientists elsewhere; in fact, no complete investigation can be made in Europe or elsewhere without the aid of specimens from America, while we are in a position to be independent, and can at last, not only stand on our own legs, but help also to sustain those to whom we have been accustomed to look for support.

At the close of Professor Agassiz's remarks, the President of

the Society stated that in order to allow members an opportunity to personally welcome their guest, further proceedings would be dispensed with. He then declared the meeting adjourned, and the members passed around Professor Agassiz and offered congratulations and friendly greetings.—[*Bulletin.*

The California Academy of Sciences met September 9th, Professor Davidson presiding.

A collection of fossils from the John Day Miocene, Oregon, was presented by C. D. Voy.

A sensation was created by the visitation of Mr. Andrews, of Woodward's Gardens, who brought with him a bottle of—not flea powder—but flea seeds. It was a veritable curiosity, too good for the Gardens, and Mr. Andrews, who always knows just the right thing to do, brought it where it would be appreciated. His contribution consisted of what appeared to be bewitched mustard seed. The little particles kept jumping about like "all possessed." They were sent to him from Stockton, with no other description than—"I call them flea seeds."

The members of the Academy were all nonplused at the strange sight. They have been in the city since last Saturday, and are just as lively as when they came. Upon examination, it was evident that each little seed-like particle contained a small worm, but what the shell consisted of was the mystery. They may be little cocoons, or they may be seeds, into which the egg of some insect has been deposited and hatched. The great mystery is, how do they hop about so from internal motion alone?

Dr. Gibbons exhibited specimens of last year's apples, dried somewhat, but in good condition, picked from last year's crop. They had been preserved in a box exposed to the air.

Professor Davidson made some very instructive and important statements regarding the establishment of the proposed Astronomical Observatory by the National Academy of Sciences, in some place west of the Mississippi Valley. Illustrative of the importance of this fact, he narrated some of his experiences in the Sierra Nevadas, where the higher the altitude the more perfect and frequent the opportunities for observation. He had been able to see with a small glass every night the companion

of *Philaris*, and to separate the rings around Saturn. He had nowhere else witnessed such clear and finely cut outline and delineation of surface on the moon. The sun also had been observed with remarkable accuracy. Further east, in the Rocky Mountains, he was fearful that atmospheric influences would prevent observation in many instances where in the Sierras they would be easily obtained. The new teleseope, which will be one of the finest if not the finest in the world, is nearly finished at the factory in Cambridgeport, Massachusetts. It has a twenty-seven inch glass, and is expected to do greater work than ever was done by that of Lord Rosse.

Professor Davidson has reported in favor of the Sierra Nevadas for the site of the new observatory. His reports, it is hoped, will at least result in the inauguration of a scientific commission to examine into the wonderful atmospheric peculiarities of which Professor Davidson speaks.

A MUNIFICENT GIFT TO THE UNIVERSITY.

A meeting of the Board of Regents of the State University was held September 18th, 1872. Present—H. N. Bolander, A. S. Hallidie, Samuel Merritt, J. W. Dwinelle, Horatio Stebbins, J. W. Martin, J. Mora Moss, and Edward Tompkins.

The following communication was received from Edward Tompkins:

To the Regents of the University of California: The business between California and Asia is already very great. Its future is beyond any estimate that the most sanguine would now dare to make. The child is now born that will see the commerce of the Pacific greater than that of the Atlantic. It is carried on with people of whose languages we are wholly ignorant, and in all the vast transactions that it involves, we are dependent upon native interpreters, whose integrity will not become more reliable, as the magnitude of their temptations shall increase. It is, therefore, of the utmost consequence for California, that the means shall be provided to instruct our young men, preparing

for lives of business activity, in the languages and literature of Eastern Asia. It is the duty of the University to supply this want. It can only be done by a well organized Department of Oriental Languages and Literature, and every day that it is delayed is an injury to the State.

Fully believing that it is to become not only an important but a leading department of the new education that our peculiar circumstances demand, I have hoped that it might be my privilege to endow the first Professorship specially devoted to it. The wish has not brought with it the necessary means, and the money for the purpose is not within my control; but I have property that I can spare without wrong to any claim upon me; and rather than longer postpone an object that I deem so important, I venture to make you the following proposition:

I have prepared, and now offer for your acceptance, a deed of about forty-seven acres of land, with good title and free from incumbrance, at the junction of Broadway and University avenue, Oakland, upon the following terms and conditions:

You shall forthwith establish, and as soon as practicable fill, a Professorship of Oriental Language and Literature in the University of California, with the same salary as the other regular Professorships.

You shall take possession of the lands conveyed by me, and sell the same as rapidly as it can be done judiciously, until you have sold the whole, or enough thereof, to produce the sum of $50,000 in gold coin. All the money so realized shall be set apart as an endowment fund for said Professorship. It shall never be mixed with other funds of the University, or loaned in whole or in part to any other fund, or to the University itself, in any manner, or on any pretext whatever. It shall be kept invested in mortgage securities, upon unincumbered, productive real estate within the limits of the present County of Alameda. If the income shall exceed the salary of the Professor, the surplus shall be added to the principal, to provide, as far as possible, for the time when the rates of interest will be lower than they are now.

My consent in writing, or that of my legal representatives, if I shall not be living, shall be necessary to any sale of said land, or any part thereof, within five years from this date. After

that time, no such consent shall be necessary to any sale or sales not exceeding in the aggregate the sum of fifty thousand dollars.

Whenever said sum of fifty thousand dollars shall have been realized from said land, either in money or in obligations, or securities, and there shall remain any surplus, either of land, or money, or securities, such excess shall be conveyed or paid to me, my legal representatives or assigns, it being my intention to give for the endowment of said Professorship the sum of fifty thousand dollars, if said land shall produce that sum, and no more.

The salary of said Professor, until the same can be paid from the income of said endowment fund, and all expenses of the execution of this trust, or of the investment or reinvestment of the fund, shall be paid by the Regents, and no money thus paid, whether for salary or expenses, shall be deducted from said fund, or the subsequent income thereof, it being the intention hereof that neither said fund, or the current income thereof, shall ever be diminished by any claim for advances made on its account, on any pretext whatsoever.

If said Professorship shall not be kept up, or the conditions hereinbefore stated shall not be complied with, said land, or so much thereof as has not been sold, shall forthwith revert to me, my heirs, or assigns, and shall be conveyed or paid over by said Regents without delay.

As a recognition of the debt of humanity to the great and good man now honoring our State with his presence, said Professorship shall be known as the "Agassiz Professorship of Oriental Languages and Literature."

As the department thus organized will at first not be fully employed, I hope that it may be utilized for the education of such young men as may come here for that purpose from Asia, upon such terms and under such restrictions as the Regents may prescribe. As a lover of California, I feel deeply the humiliation of seeing them pass by us in almost daily procession to the other side of the continent in search of that "intellectual hospitality" that we are not yet enlightened enough to extend to them; and yet more that I cannot impose this as a condition of

this trust, without danger of injury to the great interests that I most earnestly desire to protect.

I repeat the expression of my regret that it is not in my power to simplify the trust by the direct payment of the necessary money. Desiring to place it beyond contingency by completing it during my own life, and to make such return as I am able for the kindness and prosperity by which I have been blessed in California, I have decided to postpone it no longer, but of such as I have of that I freely give. I humbly pray that in the coming time the Agassiz Professorship may be an instrument of great good to those for whose benefit it is designed.

Edward Tompkins.

Oakland, September 18th, 1872.

As a formal acceptance of this munificent gift, the following resolution, offered by Mr. Stebbins, was unanimously adopted:

Resolved, That the Regents accept the conveyance of land in Oakland, this day made to them by Edward Tompkins, upon the terms and conditions in the communication from said Edward Tompkins accompanying said deed, expressed, and that as evidence of such acceptance, the Secretary deliver to said Edward Tompkins a copy of such conditions, and of this resolution duly certified, and that he affix the corporate seal thereto.

The following resolution offered by Mr. Tompkins was adopted:

Resolved, That the Building Committee be and that they hereby are instructed to proceed with all reasonable expedition to perfect the plans and specifications for a building for the College of Letters, to be constructed of wood, and when the same shall be perfected and approved by this Board, to take the necessary measures to put the same under contract with as little delay as practicable.

On motion of Mr. Bolander, the Building Committee was authorized to have a greenhouse constructed at an expense not to exceed $500, and that the Professor of Agriculture be authorized to employ a gardener at a compensation not to exceed $100 per month.

Mr. Bolander also offered the following:

Resolved, That the President of the University be requested to confer with the President of the Mechanics' Institute, and

arrange for a course of lectures to be given the coming Winter in the City of San Francisco, and in connection with the Mechanics' Arts College.

Adopted.

The report on the Experimental Garden was accepted and placed on file.

Adjourned.

NATURAL SCIENCES—INDUSTRIAL EDUCATION.

GENEALOGY OF THE CALIFORNIA BIG TREES.—The American Association for the Advancement of Science held its twenty-first annual session at Dubuque, Iowa. Professor Asa Gray, the retiring President, delivered a noteworthy address on the *sequoia gigantea*, the "Big Trees" of California. Of those now in existence he said but little, contenting himself with disproving, in a few keen words, the popular fallacy that they are the oldest and tallest trees in the world. Certain Australian gum trees (*eucalypti*) are taller, and several groups of trees in different parts of the globe "may claim to be older." Professor Gray devoted himself to tracing the genealogy of these California forest kings. They exist only in that State. This can be explained on any one of three hypothesis: Either they are just coming into existence, and are destined, if unmolested by man, to spread over the world; or they have long lived on the Pacific slope and have never spread elsewhere, because no other climate is fit for them; or, finally, these living specimens are but the scanty survivors of a race that once crowded the hills and valleys of the world. The last hypothesis is the one the speaker defended. His argument may be med up as follows: At the beginning of the tertiary period the entire northern temperate zone was a region of perpetual Summer. Gradually glaciers rolled down from the north, driving all vegetation far to the south. Then a warmer climate came again, and freed the greater part of the northern hemisphere from its fetters of ice. As these melted away vegetation extended northward, but not to its former limits. These facts furnish a ready clue to the history of the "Big

Trees." If their ancestors were numbered by hundreds of thousands, their fossil remains must exist in the strata formed by the great ice-flood that swept over the northern half of the globe. Research has found the fossil *sequoia gigantea* throughout the miocene formations of northern Europe, and in those of Iceland, Spitzbergen, Greenland, Alaska, and the Rocky Mountains. All of these fossil specimens are almost exactly the same as the "Big Trees" of to-day. The very slight difference could be readily explained by the modifying force of different conditions. This crucial test shows that before man sprang from the dust in the Garden of Eden, according to Genesis, or was evolved from the ape of northern Africa, according to Darwin, the *sequoia gigantea* belted Northern America, Asia and Europe, and the islands of the northern seas. The "Big Trees" of California are but the outlying sentinels of an army that has vanished.—*Chicago Tribune.*

AN OPTICAL CURIOSITY.—Here is a simple little experiment by which we can prove the existence of a blind spot in our eyes. Shut your left eye, and with the right one look steadily at the cross just below, holding the paper ten or twelve inches from the eye.

X O

Now move the paper *slowly* toward the eye, which must be fixed on the cross. At a certain distance the other figure—the letter O—will suddenly disappear; but, if you bring the paper nearer, it will come again into view. You may not succeed in the experiment on the first trial, but with a little patience you can hardly fail; and the suddenness with which the black spot vanishes and reappears is verry striking. Now, examination has shown that when it disappears its immage falls exactly on the spot where the optic nerve enters the eye, thus proving that spot to be blind.

CLEANING SKELETONS.—The best way to get a small skeleton well cleaned is to bury the animal after taking off the skin, in an ant-hill.

DEPARTMENT OF PUBLIC INSTRUCTION.

The following opinion of the Attorney General decides the question whether the special school tax provided for by section ninety-nine of the California School Law, and section eighteen hundred and forty-six of the Political Code, can be levied under the provisions of the Revenue Law included in the various provisions of the Codes that take effect prior to January first, eighteen hundred and seventy-three:

OFFICE OF THE ATTORNEY GENERAL OF THE STATE OF CALIFORNIA,
SACRAMENTO, September 9th, 1872.

Hon. H. N. Bolander, Superintendent of Public Instruction:

DEAR SIR: In answer to the question asked by the County Superintendent of Inyo County, I have to say that it is the duty of the Board of Supervisors of each county to levy the special school tax authorized by section ninety-nine of the School Law. The time at which they shall levy the tax is prescribed by section three thousand seven hundred and fourteen of the Political Code, now in force, and is the first Monday in October. Yours, respectfully,

JOHN L. LOVE, Attorney General.

According to section twenty-nine of the California School Law, "in any case of alleged hardship, any head of a family, parent, or guardian, may make a statement of the facts to the Board of Supervisors, and if, in the judgment of the Board, good cause be shown for such transfer, he may be transferred to another district." The Board of Supervisors of Sacramento County, in accordance with the above quoted provision of section twenty-nine, transferred the heads of several families from the Freeport School District to the Union District. The question arose whether this action of the Board of Supervisors did not virtually change the boundaries of the districts, and entail a transfer of taxable property and census children. The Attorney General decides that the boundaries are not changed, but that the taxable property and census children are transferred.

OFFICE OF THE ATTORNEY GENERAL OF THE STATE OF CALIFORNIA,
SACRAMENTO, August 12th, 1872.

Hon. H. N. Bolander, Superintendent of Public Instruction:

DEAR SIR: In answer to the communication of Superintendent Jackman, I think that the action of the Board of Supervisors in transferring the three inhabitants of Freeport School District to the Union District, did not change the boundaries of either district, but simply gave the persons named the right to send their children to school in the district to which they were transferred. I think the taxable property and the children of the persons transferred belong to the district to which they were ordered transferred. Such a disposition seems to me to be just.

Respectfully yours, JOHN L. LOVE, Attorney General.

The August apportionment of State school moneys (see September number of TEACHER) was based upon the school census returns of the school year ending June thirtieth, eighteen hundred and seventy-one, and not upon the returns of eighteen

hundred and seventy-two. The latter returns ought to have been the basis of apportionment, according to section ninety-four of the California School Law. But section five of the law provides that the Superintendent of Public Instruction shall apportion the State school moneys *immediately* after the State Controller has reported to him the moneys in the State Treasury belonging to the School Fund, and subject to apportionment. The State Controller must report on or before the first day of August of each year. (Section eleven of the School Law.) It is plain, therefore, that the abovementioned apportionment of State school moneys had to be made *immediately* after the first day of August. At that time the school census returns of the school year ending June thirtieth, eighteen hundred and seventy-one, were the latest returns on file in the State Superintendent's office. The school census returns for the school year ending June thirtieth, eighteen hundred and seventy-two, were not due at this office until August twentieth, eighteen hundred and seventy-two, and are not all received at the present time of writing, and cannot be checked, corrected and compiled for use before October, if then.

In this connection we call the attention of County Superintendents to section sixteen, subdivision three, and section seventeen of the California School Law. Next year the State Superintendent will be compelled to strictly enforce the provisions of these sections, or rather the provisions of sections 1543 and 1544 of the Political Code, which will then be in force. The Political Code makes it obligatory upon the County Superintendent, under the penalty of forfeiting one hundred dollars of his salary, to make reports *whenever directed by the Superintendent of Public Instruction*. Section three hundred and thirty-two of the Political Code provides that "all officers * * * required by law to make reports to the Governor or Legislature, must send such reports to the Governor before the *first day of August*, in the year eighteen hundred and seventy-three, and in every second year thereafter." Next year it will, therefore, be the duty of the State Superintendent to direct County Superintendents to report before the time at present fixed by law.

The dilatoriness of census marshals, trustees and teachers to report at the proper time is offered by quite a number of County Superintendents as a valid excuse for not reporting at the time required by law. As far as trustees' reports are concerned, this might be considered a valid excuse, if County Superintendents could not collate from other sources the data which trustees' reports are presumed to furnish. Trustees' reports ought to exhibit the financial condition of their respective districts; but as far as our experience serves us, in the majority of cases such financial exhibit is anything but correct, and seldom corresponds with the County Superintendent's books. The County Superintendent ought to be able, at the close of each school year, to collate from his own books the financial statistics of each district, excepting, perhaps, the value of school property, and the amounts raised by rate bills, subscription, or from other sources. The County Superintendent generally knows which districts avail themselves of these means of raising school revenue, and he can, before the close of the school year, ascertain the amount so raised. But even without this, County Superintendents can, generally speaking, make up the financial statistics of each district without having seen a single trustees' report. In most cases it is advisable for County Superintendents to take their own accounts—which are checked by the County Treasurer's books—and not waste time in the almost useless task of trying to correct trustees' reports. At some future time we shall

resume the subject of trustees' reports. As far as census marshals' and teachers' reports are concerned, the law has conferred enough authority—even punitive authority—upon the County Superintendent to exact correct reports at the time specified by law. If he fails to avail himself of this authority, he must blame no one but himself if, at the time of making out his report, he finds that all the census marshals or teachers have not reported, or have sent in incorrect reports.

THE Teachers' Institute for Monterey County convened September 16th, 1872. At the present time of writing no minutes of the proceedings have come to hand. A severe attack of cholera morbus prevented the State Superintendent from attending the Institute. Professor Carr, of the State University, who intended to lecture to the Instituto, was taken ill on his way to Monterey, and was obliged to return to his home.

THE Teachers' Institute of Santa Cruz County will convene at Santa Cruz, October 8th, 1872; the Institute of Contra Costa County will convene at Pacheco, October 1st, 1872; the Institute of Stanislaus will convene at Modesto, October 8th, 1872.

Certificates for the following named persons remain uncalled for in the office of the State Superintendent of Public Instruction:

EDUCATIONAL DIPLOMAS.—Miss Mary R. Culbertson, Miss Sarah E. Frissell, Abbie F. Aldrich.

SECOND GRADE STATE CERTIFICATES.—Miss Fannie Savage, Miss Lucy C. McNear, T. E. Kennedy.

THIRD GRADE STATE CERTIFICATES.—Miss Ida M. Kervan, Miss Lizzie M. Brooks, Miss Nellie F. McFarland, Miss Addie E. Aiken, Jessie Forsythe, Miss Sarah R. Avery, Miss Annie M. O'Brien, Miss Ettie S. Thompson, Miss Addie E. Rogers, Miss Esther Levy, Miss Louisa M. Coffin. Miss Alice Hall, Miss Mary C. Fitch, Miss Mary C. Hall, Edith Rivers, Mary F. Teague.

LIFE DIPLOMAS.—George C. Mack, M. B. Potter, Frances A. Woodruff.

EDUCATIONAL ITEMS.

NATIONAL UNIVERSITY.—Near the close of the last session of Congress, a bill to establish a National University was introduced into the Senate by Mr. Sawyer, and referred to the Committee on Education and Labor. The object of the bill, as stated in the preamble, is to found a "university so comprehensive in plan as to include every department of learning; so high as to embrace the limits of human knowledge; so national in aim as to promote concord among the people of all sections, and so related to other institutions as to promote their efficiency, and with them form a complete system of American education." The bill was proposed by Dr. J. W. Hoyt, of Wisconsin, Chairman of the Committee on a National University, appointed by the National Educational Association at the meeting held in St. Louis. It is the result

of a most thorough examination of the subject in all its bearings, and of a careful comparison of the views and suggestions of the members of the Committee and many other competent persons, to whom the original draft of the bill was submitted for criticism. The provisions for the organization and management of the University effectually protect it from political or sectarian influence and control, and no party or administration will be able to "run" it. Thus the chief objection to the founding of such an institution by Congress is obviated. The initial endowment is an appropriation by Congress of twenty million dollars, in the form of a perpetual registered certificate of the United States, bearing five per cent. interest, to be paid quarterly on the order of the Board of Regents. It is also provided that chairs or faculties in any department of learning, or in support of any principle of truth, may be endowed by gift, decree, or bequest; and the parties endowing the same shall have the privilege, subject to the approval of the Board of Regents and Council of Education, to determine the character of the instruction, and the person by whom such instruction shall be given. The sum necessary to endow a chair is fixed at $100,000. It is expected that this provision will secure an adequate and increasing endowment. The bill provides for the organization of twenty-two faculties, and others may be added. We trust that this great measure will have the hearty support of all friends of high education. The institution is designed to supplement and crown our present collegiate system.—*National Teacher.*

MIAMI (OHIO) UNIVERSITY has changed its system of instruction, adopting that of the University of Virginia. The different departments of knowledge are taught in separate schools, and the instruction is given in the form of lectures, with reviews and examinations. The assignment of lessons in text books and the conducting of recitations are both abandoned. Students have their choice of studies.

DR. CALVIN CUTTER, author of the well known series of text books in Physiology, died at his residence in Warren, Mass., June 20th, 1872.

EDUCATION AMONG THE INDIANS.—The population of the Choctaw Nation is between sixteen and seventeen thousand. They have forty-eight public schools, and will soon have two boarding schools, one for each sex. They have twenty youths at school in the States. Whole number of children attending school, 1400. Annual school fund, $30,000. The population of the Cherokee Nation is 17,500, and the annual school fund is about $50,000. This nation has forty-eight schools, six of which are for colored children exclusively. The orphans of the nation are boarded and clothed by the interest in the orphan fund. There is one mission school conducted by Moravians, and several private schools. The population of the Creeks is 13,000. They have twenty-two public schools, and will soon have nine more, under the management of the Superintendent of Public Instruction. They have one boarding school, and another nearly completed, each accommodating eighty pupils. The superintendents of these schools are paid by the Methodists and Presbyterians, and all expenses are paid by the nation.

RESULT OF EDUCATION AMONG THE INDIANS.—The Cherokee *Advocate* says: "A trip to a neighborhood of Going Snake District, which has been blessed with a public school for a number of years, before and since the war, has given us proofs of the benefits of public schools among a class of our people least thought to be benefited by

them. Entering a company of young men, whose tall form and dark color told of pure blood, we were astonished to hear English spoken with a purity and correctness as well as simplicity, which has been unusual in our experience among young people any where. There was a total absence of slang phrases, too, which so often spoils the conversation of young men, even when educated.

AN INDUSTRIAL INSTITUTE FOR CHILDREN.—A short time ago one of the prominent citizens of Boston conceived the idea of establishing an industrial and mechanical institute in that city in which boys and girls may learn a trade which shall be of service to them. A large building has already been secured, and one mechanical branch —shoemaking—begun. At a recent meeting intended to place the claims of the institute before the public, the Hon. Josiah Quincy said: "Our schools are looked upon as model institutions; but there are great deficiencies in them. Music and drawing do not serve thoroughly to fit for life those who are to make our households cheerful and happy. The necessity of skilled labor cannot be exaggerated. He believes this school to be the only one of its kind in the country. It was small now, but it might be like the grain of mustard-seed, and grow up a plant which should overshadow the land."

SOUTH AMERICA.—A law for compulsory attendance of children from seven to fourteen, has been enacted for the province of Rio Janeiro, in Brazil. The President of Ecuador recommends free but compulsory instruction. Chili has 676 common schools, with 370,129 pupils. Corporal punishment is not allowed. In Buenos Ayres there are 60,000 Italians, forming, if we are not mistaken, the majority of the population. The number of French, however, are not inconsiderable. Add to them the Spanish of the Argentine Republic, the Portugese of Brazil, and the German colonists in Rio Grande do Sal, and Dutch and English in Guiana, and we have a little Europe in the great continent of South America. The Spanish Academy at Madrid has invited the Spanish-American men of letters to coöperate in a movement to give unity and stability to their common tongue. A perfect Babel of idioms in the republics of South America renders such a task eminently necessary.

BOOK NOTICES.

EATON'S MATHEMATICAL SERIES. Boston: Thompson, Bigelow & Brown. 1872.

The new edition of this well-known series appears in nine numbers: *Primary Arithmetic, Intellectual Arithmetic, Elements of Arithmetic, Common School Arithmetic, High School Arithmetic, Bradbury's Eaton's Elementary Algebra*, and *Bradbury's Elementary Geometry and Trigonometry*. The Arithmetics have been too recently used in the schools of California to need any extended criticism from us. With the Elementary Algebra we are well pleased; the range and method of the work make it one of the best text-books with which we are acquainted. But we cannot as heartily commend the Elementary Geometry. A large number of theorems have been omitted, simply because these theorems are not strictly necessary to the demonstration of the last theorem of Plane Geometry, namely, the theorem in relation to

the volume of a sphere. The attempt to compress Geometry into "a single theorem, without an unnecessary link in the chain of reasoning," narrows materially the educational value of the study, and increases greatly the difficulties of teaching it in public schools. The truth of this is indirectly acknowledged by the author; for, in the preface, he says that "as those who have not had experience in discovering methods of demonstration have but little real acquaintance with Geometry, there have been added to each book, for those who have the time and ability, theorems for original demonstration. These Exercises, with different methods of proving propositions already demonstrated, include those that are usually inserted, but whose demonstration in this work has been omitted." In other words, the essential theorems of Geometry must first be taught, and then, at the option of the teacher, and if time permit, may be extended to pupils the aid necessary to acquire a real acquaintance with Geometry. Further comment is unnecessary.

Elements of Physiology and Hygiene. By R. T. Brown, M. D., Chemist-in-Chief, Department of Agriculture, Washington, D. C. Cincinnati: Wilson, Hinkle & Co.

This book was prepared in response to a resolution of the Indiana State Teachers' Association, and is designed to meet the wants of common schools. In limiting itself to Physiology and Hygiene chiefly, only so much of descriptive anatomy being introduced as will enable the student to understand the functions of the several organs described, this book circumscribes all what our common schools ought to attempt to teach of these subjects. But in arranging this material the book is deficient in method, simply because it adheres to the time-honored method of treating first of the "Organic or Vegetative Functions," or the functions concerned in the maintenance and extension of the body; then of the "Animal Functions," or the functions concerned in locomotion, sensation and intelligence; and so on to the end. Now under the functions of an organ are included generally a great variety of actions, resulting from the concurrent exercise of the powers of the several component parts of the organ. It must seem reasonable, then, that the structural characteristics of an organ ought to be studied before the functional powers of the organ are considered. Moreover, structures are not only significant as component parts of organs, but they have a Physiology and Hygiene of their own, a knowledge of which is even of more primary importance than a knowledge of the Physiology and Hygiene of the different organs.

The book might have been improved by the omission of the first two lessons treating of the Classification of Bodies and Animals. These lessons on classification can be of no significance to children. Some very curious definitions have here crept in: *e. g.*, *mollusks* are "soft-bodied animals without limbs, such as snails, oysters, clams, etc.; *radiates* are animals furnished with "arms or feelers extending in every direction, like rays, from the mouth, which is simply an opening into the central, digestive cavity."

On the whole, however, this book is by far the best text-book on Physiology we have seen, and we commend it most heartily to teachers and parents.

It is printed in large, clear type, on delicately tinted paper. Some of the wood-cuts might be improved.

The Teachers' Manual. By Hiram Orcutt. Boston: Thompson, Bigelow & Brown.

This little book furnishes the teacher with practical suggestions upon every topic

that will be likely to occupy his attention. All the disciplining agencies to be employed in successful government and instruction are fully and carefully discussed. The following extract will show the spirit and scope of the work :

"And why does not the study of spelling and grammar qualify our children to apply these simple principles in the use of written language? Because each department is learned as an abstraction and as a task, and is only partially learned at all.

"Oral spelling of columns of unmeaning words, as found in the spelling-book, the study of capitals and punctuation in fine print, and daily recitations of the formal rules of grammar do not *educate;* such instruction fills the mind with *trash*, but imparts no *practical* knowledge.

"Correct instruction in these different departments will qualify the scholar to compose and write correctly. As it is, he spends his school life in studying grammar, and the remainder of his days in speaking and writing *false* syntax; is sure to violate every rule and principle which he has learned.

"Correct spelling on paper alone can make good spellers: the *practice* of speaking and writing *correctly* is necessary to become a good grammarian. Hence, the teacher should insist upon accuracy and propriety in the use of language in the recitation and in the common intercourse of the school, and seek practical results in the study of every principle and rule in the language."

HOW PLANTS BEHAVE. By Asa Gray. New York: Ivison, Blakeman, Taylor & Co. San Francisco: A. Roman & Co.

Dr. Asa Gray is no more distinguished for his numerous contributions to the higher departments of the science of botany, than for his successful labors in popularizing the science. Of his numerous botanical text-books, the most charming works are "How Plants Grow" and "How Plants Behave." "How Plants Grow" presents some of the most abstruse points in structural botany with such a "matter-of-fact simplicity" that children are charmed as with a tale. "How Plants Behave," tells us how they move, climb, employ insects to work for them, etc. The novelty of the subjects presented will be highly interesting to children, and may profit even older heads.

SCRIBNER'S FOR SEPTEMBER. A lively illustrated paper, by Edward King, "In and About Paris," opens the September number of SCRIBNER'S. There is also a capital article on Sculpture, by an accomplished critic, with numerous illustrations; and a pictorial account of the "Ascent of Gray's Peak" by a party of ladies and gentlemen. The most important article of the number, however, is Mr. Mulford's essay on the late Frederick Denison Maurice, one of the greatest thinkers and preachers of modern times, among whose disciples were John Sterling, Alfred Tennyson, George MacDonald, and Thomas Hughes. Miss Fannie E. Hodgson, author of the genuinely pathetic story of "Surly Tim's Trouble," in the June number of SCRIBNER'S, contributes another story of much power, entitled "One Day at Arle." Miss Adeline Trafton tells a seaside story of characteristic strength. "After the Darkness, Light," and Hiram Rich is pleasantly suggestive in his seasonable sketch of "Vater's Vacation;" while Mrs. Oliphant's masterly novel, "At His Gates," moves steadily on. Then we have an interesting account of the "English Singing Birds in Florence" in 1855—the Brownings, Frederick Tennyson, the Trollopes, and Lever, the novelist. Charlotte L. Forten tells of "A Visit to the Birthplace of Whittier." For poetry we have "A Ballad of the Gold Country," by H. H., with verses by Miss Kate Putnam Osgood and Mrs. Ritter. Dr. Holland, in Topics of the Time, treats of "The Bane of the Republic," namely, office-seeking, "The Matter of Size." "Modern Preaching," and "Prizes for Suicide." The Old Cabinet contains "Bulrushes," "The Little Crowned Salamanders," "Tests," "A Canon of Criticism," and "Let us have Faith." Nature and Science has brief papers on the Spectrum, the Color of the Sea, Sewage as a Cement, etc.; Home and Society, "Summer Travel," "The Boy," "A Fernery," "For the Frugal," and "Laces." In Culture and Progress there is a brief essay on modern acting, besides the usual book notices. The etchings this month are particularly good—Miss Osgood and Mr. English being the contributors.

THE following books have been received too late for notice this month:

FIRST BOOK ON ANALYTIC ANATOMY, PHYSIOLOGY AND HYGIENE, HUMAN AND COMPARATIVE. For Common and Grammar Schools, and for Families. By Calvin Cutter, A. M., M. D. For sale by A. Roman & Co., San Francisco.

TEXT-BOOK OF GEOLOGY FOR SCHOOLS AND COLLEGES. By H. Alleyne Nicholson. New York: D. Appleton & Co. 1872.

HUMAN ANATOMY, PHYSIOLOGY AND HYGIENE. A Text-Book for Schools, Academies, Colleges, and Families. By Joseph C. Martindale, M. D. Philadelphia: Eldridge & Brother. 1872.

MARTINDALE'S FIRST LESSONS IN NATURAL PHILOSOPHY. Philadelphia: Eldridge & Brother. 1872.

A BRIEF ENGLISH GRAMMAR ON A LOGICAL METHOD. By Alexander Bain, LL. D. New York: Holt & Williams. 1872. San Francisco: Payot, Upham & Co.

KEY TO A BRIEF ENGLISH GRAMMAR ON A LOGICAL METHOD. By Alexander Bain, LL. D. New York: Holt & Williams.

TITI LIVI HISTORIAM; I, XXI, XXII. C. & S. The Histories of Livy, Books I, XXI, and XXII, with extracts from Books IX, XXVI, XXXV, XXXIX, XLV. Edited and Annotated by Thomas Chase, M. A. Philadelphia: Eldridge & Brother. 1872.

THE ECLOGUES, GEORGICS, AND MORETUM OF VIRGIL; with Explanatory Notes, and a Lexicon. By George Stuart, A. M. Philadelphia: Eldridge & Brother. 1872. For sale by Payot, Upham & Co., San Francisco.

NEW PRACTICAL ARITHMETIC FOR GRAMMAR DEPARTMENT. By James B. Thomson, LL. D. New York: Clark & Maynard. 1873.

NEW MENTAL ARITHMETIC FOR PRIMARY DEPARTMENTS. By James B. Thomson, LL. D. New York: Clark & Maynard. 1873.

NEW RUDIMENTS OF ARITHMETIC: Combining Mental and Slate Exercises for Intermediate Departments. By James B. Thomson, LL. D. New York: Clark & Maynard. 1873.

INTRODUCTION TO ANALYSIS AND PARSING. By G. E. Lighthall. San Jose: A. Waldteufel.

A SMALLER SCHOOL HISTORY OF THE UNITED STATES. By David B. Scott. New York: Harper & Bros. San Francisco: A. Roman & Co.

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THE

CALIFORNIA TEACHER.

NOVEMBER, 1872.

VOL. X. SACRAMENTO. No. 5.

TEACHING READING.

[*For the California Teacher.*]

DOES reading include elocution? Shall we teach our children merely to recognize words, and pronounce them correctly, so that they may be able to take up a newspaper or a book and read glibly, or shall we go further, and teach them not only to do this, but to discover the hidden meaning of the words—to control and manage the voice which they have, and to bring out the sweetness and power and beauty of the music which would otherwise be locked up forever in that wonderful little instrument in the throat?

Shall we teach them merely that which is necessary and useful, or shall we unlock to them that which is beautiful?

One of our best teachers, when in charge of a country school, had among her pupils a girl whom all the former teachers characterized as idle, stupid, and troublesome, if not vicious.

Somewhat appalled, but not discouraged, the good teacher set herself to work to discover the one point through which the better nature might be reached, for she was no believer in total depravity, (the good teacher never is,) and she firmly believed that some such place existed in the girl's nature.

At length, after many months, she discovered it. It was elocution. She was gifted with a fine voice, and a soul which,

in spite of her unpromising exterior, could admire and appreciate the beauties of poetry.

She eagerly seized the opportunity of using these gifts—an opportunity which her life had never before offered to her, so that she was hardly conscious of possessing them; and it was not long before a marked difference was noticed in the manners and deportment of "that dreadful girl."

The careful teacher, who happened to be thoroughly competent to teach the fascinating study, used her power carefully, and by means of it produced industry and effort in those branches which had before been so distasteful.

It was used as a means of punishment more powerful than the rod, even had the teacher been inclined to use that unpleasant medicine for laziness and disorder.

A failure in arithmetic or grammar was usually followed by the remark, "You can make up this lesson in the reading-room, Mary, since you so seldom fail in that, and so often in this." Had Mary perceived that her favorite study was being used as a means of punishment, a fatal spirit of anger and contradiction would have risen in her turbulent breast; but as it was, considerable industry was manifested, ambition was awakened. Mary was found to be far from stupid, and when the teacher left she had the satisfaction of seeing "that dreadful girl" the first in the first class of the school; and she felt, as she bade the grateful girl "good bye," that but small part of the pay for her work was in money.

Whether it is desirable for children in our lower grammar and primary classes to be able to read the newspapers, is much to be doubted; although parents frequently complain that "Mary has been to school now for going on four years, and can't yet of an evening read the newspaper to the father when he smokes his pipe."

Even the purest child-mind cannot but be soiled a little with such literature.

Quality, not quantity, should be the object; and the amount of reading matter at present taught should be rather lessened than increased.

Many children have a fine voice for reading, who cannot sing at all; and I think that out of a hundred average boys and

girls, fifty would be found to have some talent for elocution, perhaps twenty would have talent for music.

Special teachers, of undoubted ability, are employed at a high salary to teach music in our city schools, while reading is left to teachers, many of whom are not, and do not pretend to be, able to teach more than the humdrum repetition of words.

Children often acquire, in their first reading lessons, such vicious habits of enunciation and expression as cling to them through life; and even if the child afterward comes under a teacher who realizes the importance of good elementary instruction in this branch, the habits which have been formed are too deeply seated to be eradicated.

The contrary is also true, and no matter how poor the after teaching may be, one term's good work is never lost.

I once heard a gentleman say that when a small boy he had been taught to recite from Bozzaris by a teacher who thoroughly understood how to teach it. She gave him but few explanations of the meaning, but drilled him thoroughly on the expression; and he declared that then, after a lapse of thirty years, he frequently caught himself repeating the fine verses with a relish and appreciation which he did not know for any other poem in the English language, and with the same inflections and turns of expression which had been taught him by the teacher long since dead.

Yet, with almost everything in its favor, there is no study so wofully neglected as elocution.

In most of the higher grades of the grammar schools three reading lessons are rarely heard in one term, and the tired and faithful teachers declare that they cannot give the time, when there is such a pressure of grammar, arithmetic, and geography, to say nothing of the score of less difficult studies.

This special branch is neglected, because on examinations heretofore, little or no prominence has been given to it; and the test of a teacher's success has been, too often, the success of her class in arithmetic.

One tenth, or sometimes one twentieth as many credits have been given for reading as have been given for arithmetic; and whole classes have been known to come out of the examinations entirely perfect in this branch, whose elocution was simply

disgraceful. Principals seemed to think that it was of very little account any way, and they would give the pupils full credits in this, so that they might have every chance for promotion.

In the lower grades more care and attention has been given, and the consequence is that many first and second grades would compare very unfavorably with many fourths and fifths.

Yet it is acknowledged that fine elocution is as great an accomplishment as fine singing; and it may be attained with vastly less of training and expense.

Of late, the teaching of music in our San Francisco schools has been intrusted to the teachers in charge of the different classes, under the supervision of the special teachers. The movement was greeted at first with a general groan. Two thirds of the teachers knew nothing of the theory of music, and perhaps half of those could not sing the scale. It was thought by many that it would be peculiarly dry and uninteresting to the younger children, and most vexatious to the teachers. But experience has demonstrated the wisdom of the movement. Many of those who had no knowledge of the science of music have studied until they are at least able to instruct their classes, while those who have not done so have exchanged half hours with those who are competent, and have thus enabled their classes to obtain that knowledge which they could not give.

It has been found that the children thoroughly enjoyed the lessons; and, although in some classes fifteen or twenty per cent. were unable to sing the scale, yet all, even in the lowest grade, could learn, and liked to learn to make the staff and place upon it the different notes and rests, at the teacher's dictation. I have been told that in many cases the results were truly remarkable. The special teacher, in his occasional visits, settled all questions, examined the class, and encouraged both class and teacher.

If some such method as this could be instituted in regard to elocution, it would not be long before a manifest improvement would be made. There is no large school in which two or three good teachers of reading could not be found; some from natural aptitude, some from special training. Others excel in

arithmetic, grammar, or geography. Why not institute, in some degree, the department system, and allow every teacher to teach her favorite branch in more than one class; thus giving the benefit of her excellence to twice or three times the number of children, who would not otherwise receive it?

She need not be absent more than an hour a day from her pupils, and would feel that while she was doing excellent work in grammar or arithmetic, that her class was receiving much better instruction in reading than she could possibly give it.

It is a mistake to suppose that in the lowest grade there is no such thing as elocution. If a child is taught, among his first lessons, the sentence, "It is a good dog," it is as necessary that he should say it naturally and prettily as it is that he should recognize every word and be able to read it backwards. Even in the very beginning, before he is able to distinguish one word from another, he should not be allowed to drawl, to hurry, to hesitate, or to enunciate indistinctly.

Learning to read is at first a mere matter of memory; but let that memory be of words spoken earnestly and clearly, and in a pure, unmuffled tone.

If a child talks "through his nose," as the common expression goes, it is a matter of vital importance to that child that the habit be broken up—since it is one which strengthens by neglect, and which every month of the child's life makes it more difficult to remove. It is one which affects his talking as well as his reading, and which is more unpleasant to others than to himself.

But the teacher who believes in the quantity not quality theory, or the one who does not believe in it, but is no elocutionist, must endure it quietly until the child leaves the class, and will then be relieved that he is gone.

Even the younger pupils soon learn what a pure tone is and delight in exercising it. I have heard the most unpromising little urchins read apparently very humdrum little lessons in a style which won all hearts.

Many children have a most exasperating habit of "making up" their familiar reading lessons as they go on. That is, they have the ideas and the principal words present in their minds and express them in their own way. This is most often from

their carelessness and inattention; but sometimes the child is so intent upon voice and expression that the little untrained eyes wander from the place.

I remember a little girl trying hard in an examination and saying, in the most silvery voice: "It is a pretty dog—no-o-, I mean eat."

In every grade, from the very lowest to the very highest, good elocution should be more of an aim and object. Let more credits be given on examinations for promotion; let the examinations be conducted rigidly, and pupils be marked with the utmost impartiality and justice. Let there be an end to the practice of "marking up" pupils in order that they may meet the required per cent.

Let us have two or three special teachers who not only know *what* should be taught, but *how* to teach it; who can teach successfully in the highest grades and yet are not too dignified to deal with the little ones in the sevenths and eighths. We will then send out from our schools work in elocution to be proud of, in place of the present timid, stumbling, expressionless readers, and most wretchedly untrained voices. C. G. D.

THE BEST TEACHERS FOR THE PRIMARY DEPARTMENT.

Begin well and you will end well; for a good and proper beginning implies the end. From our public schools must emanate generations whose minds are developed to spontaneous self activity, who have a clear and definite understanding of the great objects of life, who can determine for themselves and act independently.

But the first condition to secure these results are educative teachers—teachers who exert an ennobling influence over their pupils' minds, sensibilities, and volition. Such an influence, however, cannot be exerted without the sincere love for the welfare of children, without a deep interest for their physical and mental development, and without a true enthusiasm for the higher objects of education. These are the indispensable re-

quirements which teachers in charge of elementary classes must possess; for they unquestionably perform the most difficult and the most onerous part of the educational work. At this stage children must be captivated and made teachable and susceptible for the higher branches of instruction. If the kind of instruction given at this stage of development is not made effectual, impressive, and lasting; if the teacher does not completely control his pupils by his manner of instruction, enabling them to follow attentively the train of thought presented, and if they do not acquire under his tutelage that indispensable ability to direct and fix firmly their minds on the subject with which they are engaged, they must necessarily become the victims of distraction and dreams, too lazy to think and too lazy to act.

Can any one who professes to know anything whatever of educational matters seriously question the validity and importance of Section 1,687 of the new School law? The section referred to reads as follows: "In cities having graded schools, beginners shall be taught for the first two years by teachers who have at least four years' experience, and such teachers shall rank in point of salary with those of the first grade." Certainly not. The only thing strange in the matter is that it has not been long ago enacted and enforced. Years after years complaints were made that pupils were not sufficiently prepared to do the work of higher grades; and yet few were willing to admit that the greatest and most irreparable mistake was made at the very beginning, at the outset, by entrusting our beginners to young, inexperienced teachers.

In support of our assertions we give the following extract, taken from a lecture of Professor Atkinson, of the Boston Institute of Technology:

"I think it must have struck many teachers as a strange fact that in the early years of childhood, before school discipline comes into operation, there is an intense and most easily awakened curiosity in children respecting the phenomena of the outward world. Every bird, beast, and insect is a marvel; the clouds, the moon, the stars, the beautiful forms and colors of flowers, the very stones under their feet, all, to the fresh and unsophisticated mind of children are objects of study, objects

of wonder. But after a few years of ordinary school teaching all this is found to have disappeared, and too often no other curiosity, no other interest, or worse still, some bad one, has arisen to take its place. I think I am too strong in my statement, but what a satire is this on what we call education! Has the Creator implanted those instincts only to be stifled by education? or is the process of teaching first to kill as a preliminary to artificially restoring them? Alas! in too many cases they are never restored, and our education consists only in a mental maiming."

VALUABLE BOOKS.

I.

Progressive teachers, who love their profession, are in need of good books. But their salaries are usually so small and scanty that the purchase of books becomes a very grave undertaking, and they must necessarily content themselves with a few of the very best on each department of instruction.

But, since all books are generally praised when they appear in the market, how are teachers who are removed from the market, and are deprived of the daily intercourse with persons possessing bibliographical knowledge, to select advantageously from the innumerable books, good and poor, published on every branch of instruction? In consideration of these lamentable facts, it seems to us like bestowing a blessing on teachers by mentioning a few excellent books that should find their way into every teacher's library. Not quantity, but quality, is wanted; for it is certain that a few good books, well read and studied, improve more than the glibly and fleetly reading of a large number on the same subject.

All the following books should be added to the list of district library books to bring them within the reach of every teacher:

1. THE ELEMENTS OF INTELLECTUAL SCIENCE. Abridged from "THE HUMAN INTELLECT." By Noah Porter.—We consider this an indispensable book for teachers; for how can we teach well without knowing the laws of the human mind? It has been

highly praised at home and abroad. It is considered an excellent work on the subject. Style plain and simple.

2. MULLIGAN'S STRUCTURE OF THE ENGLISH LANGUAGE.—This excellent grammar touches upon many points generally overlooked by others. Teachers studying this book carefully will soon find themselves in possession of a method of teaching grammar very different from that commonly pursued in our text-books. Language very simple and plain—far more so than that of ordinary text-books. Invaluable for all who desire to teach grammar methodically and intellectually, and who are desirous to inform themselves on knotty questions.

3. MODERN PHILOLOGY. By B. W. Dwight.—Two most excellent volumes on that subject. All who desire to understand intelligently the aim and purpose of modern philology, who wish to understand perfectly the laws of the derivation of English words, will find in these two volumes an inexhaustible treasure. The author understands how to popularize his subject, and to present it in language so beautiful, so elegant, and yet so plain and simple that no one will ever regret having made his acquaintance. (Price of both volumes, $5.)

4. PHYSICAL TECHNICS. By Dr. J. Frick.—The object and design of this work is to aid teachers in making and constructing the apparatus needed in experimental physics with limited means. The work is largely illustrated, and will assist teachers materially in demonstrating physical laws. (Price, $3.)

5. GRAY'S STANDARD AND SYSTEMATIC BOTANY.—An indispensable work. A work of great merit, containing all the essential facts necessary to read vegetation intelligently.

6. LESSONS IN ELEMENTARY BOTANY. By Professor Daniel Oliver.—This little unpretending volume contains the most rational and most natural method of teaching botany. It treats of but very few common plants, found almost everywhere. The method pursued in this volume will be adopted in teaching natural history in our common schools.

7. MANUAL OF ZOOLOGY. By H. A. Nicholson. First Book on Analytic Anatomy, Physiology and Hygiene—Human and Comparative. By C. Cutter. Agassiz' Methods of Study in

Natural History.—The above three works will enable the teacher to form an intelligent idea of the animal kingdom. By studying them carefully he will be able to instruct successfully and exhaustively.

8. SCIENCE PRIMERS, PHYSICS, AND CHEMISTRY. By Professor Balfour Stewart and Professor Roscoe, respectively. (Price, fifty cents each.) These two little primers contain all that we are able to teach of these studies in our common schools.

9. THE NATURAL HISTORY OF COMMERCE. THE TECHNICAL HISTORY OF COMMERCE. GROWTH AND VICISSITUDES OF COMMERCE. By John Yeats.—These three little volumes form an inexhaustible treasure. No district library should be without them. No teacher who intends to instruct in geography comprehensively can do without them. The language is simple and plain. Children twelve years of age can understand all treated of in these little charming books.

10. WINDOW GARDENING. By H. T. Williams.—This neat volume is especially devoted to the culture of flowers and ornamental plants for indoor use and parlor decoration. It describes, in most simple language, all operations necessary to raise plants successfully, and to treat them properly. It enumerates a large number of ornamental plants, and shows, by handsome and beautiful illustrations, how to use them for decorations in our parlors. Those who can appreciate innocent enjoyment will most certainly be delighted with this elegant book, and the charms revealed therein. The ethical and esthetical effect of this book must be great. The author deserves praise unlimited.

NATURAL HISTORY OF THE ANIMAL KINGDOM.

Synopsis of a Lecture by Professor LOUIS AGASSIZ, delivered before the Academy of Sciences, San Francisco, September 25th, 1872, and before the Literary Institute of Sacramento, October 4th, 1872.

I have been repeatedly asked to give some account of the voyage of the Hassler, which has terminated its cruise in the harbor of San Francisco. But I am afraid that a narrative of

a scientific expedition would appear dull to you, for our work during the past year has chiefly consisted of gathering specimens of natural history, and packing them for safe keeping and transportation home. And if I were to enumerate the objects of interest we have gathered it would be a dry catalogue of hard names, hardly worthy of notice except with reference to the great questions which at present interest the scientific world, and which our examinations may help to solve. Let me only say that this excursion of the Hassler, as I may call it, was entirely incidental to the necessities of the Coast Survey. The good ship which brought myself and the rest of the party here is intended to continue the work of the Coast Survey along this coast. Instead of allowing her to make the voyage empty, some scientific men were invited by the Superintendent of the Coast Survey to take passage in her and make the most of it. Liberal citizens of Massachusetts added means to the good will of the Superintendent, that whatever collections should be obtained and investigations made during the voyage should not be additional expense to the great national undertaking of the Government. I think it desirable that these facts should be known in order that great expectations may not be entertained concerning the scientific results of the Hassler's voyage, for all that could be done was done through means supplied by private individuals and not by the large resources of a Government. Unfortunately it is almost everywhere still so that science has to take the humblest position in the world and that the supplies which flow to her help are frequently granted with a reluctant hand. It is only in very recent times that the value of scientific research begins to be felt; but I hope to live, old as I am, long enough to see the enlightened community which has become almost a second fatherland to me, appreciate what science is doing for the general prosperity, and will then contribute to the necessities of science with that generous liberality which characterizes the American people. It is not generally understood (perhaps scientific men are at fault in this matter) that science is at the foundation of all material progress in a community—in industry, in art, in almost everything. I well remember in my school days that electricity was a plaything in the hands of the teacher, and exemplified in the electric

room by a few balls jumping at the attraction of a Leyden jar. Now what has electricity become? And if some sour, powerful men had been sneering at the investigations made by physicists, perhaps the investigations in electricity might then have stood still, and where should we have been to-day? In these times communication could only have been effected on the back of a horse or in a hack.

It is unquestionable that the present material prosperity of the civilized communities has been fostered to a great extent by the progress of science. By discoveries made in the laboratory and elsewhere, practical men know so well how to apply science to the welfare of their fellow men. The scientific man can never see the end of his labor. And although the scientific man is rarely seen in all these matters which constitute our material prosperity, yet to his laboratory a great deal of it may be traced back. And it is well that there should be this separation, for unless impelled to the solution of the great questions with which he deals, the scientific man might readily be captivated by the advantages derived from his investigations and abandon the path of science to enter into the ring of competition in which the whole community is engaged, and science might suffer. It is with scientific men as with the apostles of all good work. They must stick to their work if they would be successful. But the scientific man's career has its special calling which no one true to himself ought to abandon. Now, what are these questions which science considers and which are of interest to the community? In the first place there are those which bear on the development of the resources of nature. And it is to physical science that we owe the information which enables us to use to our advantage the forces of nature. If there is a distinguishing characteristic between the civilization of antiquity and modern civilization, it rests in the fact that to-day we use the forces of nature, while in olden time the powers of man alone were called into requisition. We now use steam, telegraphy, the elements, water and the soil. They are all at our service, and the more we learn of them the better we make use of all the advantages which are before us and stored in this mother earth of ours, which we have hardly begun to be acquainted with, and the mere surface of which we have only

scraped. We must learn more of it in order to derive more from it, and thus only can we succeed to the advantages which the pursuit of science has and which it imparts to all those who become connected with it.

But this is only one side of the advantages which the pursuit of science gives us, and which it imparts to all those who become connected with it. The most important work of science is an intellectual one ; intellectual inasmuch as it expands our minds to comprehend all the relations which exist between all the celestial bodies of our solar system and the living beings that people their surfaces. We ourselves are a part of that creation. We do not stand isolated upon the surface of this animated world, and our relation with other beings is much closer than anybody would suppose. We are built on the same general plan with the other animals, and even beings which we hardly suppose to have any relation to us are, as it were, our next cousins. Compare the fish with the human frame, and we find in the backbone of even the least complicated structure of a fish all the elements of structure which distinguish the human frame. Not only has a fish the backbone, but the head, the cavity containing the brain, the spinal marrow, and the organ of digestion, breathing and circulation. And when we examine the position of these organs, and their relations to one another, we find these organizations built on exactly the same plan, and that one idea pervades the whole.

There are other points of view in which the study of nature has great interest. In this century the progress of science has made encroachments upon every branch of human knowledge. History has been remodeled ; the history of man has been studied and traced into ante-historic times, and the history of man has been found to be older than it was before supposed to be. These researches have conflicted with traditions that are dear to civilized man. The question arises, Is tradition true or is scientific record true ? We must stand by the truth, and in order to stand by it we must be prepared to test it. And how can we test it unless we have institutions in which the results of modern research are taught as fast as they are made ? There is a deficiency in that respect in our school system. We feed our youth with text-books which are superannuated, and in

which we find little that is given to the world by scientific discoverers. We feed them by one channel. We cultivate the memory of the children and do not cultivate their intellect as well. And still less do we cultivate those powers of perception and discrimination with which they would be enabled to make their own examination of any problem which is presented. It is sad indeed to see to what extent the mass of mankind are led by a few men; how few there are who for themselves can test statements which are made by those who venture upon expressing opinions of their own. Men in general are not prepared to form independent opinions, not only with reference to the question of antiquity, but with reference to the creeds of the world. All the creeds of the world are every day questioned by science. It is well that it is so, because it will only stimulate renewed tests of all that has been accepted as true and dear to mankind. We shall learn to form our own opinions in these matters which relate to nature, or in which a knowledge of nature is a part. I propose to show you where the dangers are, and how to meet the demands upon our credulity, and our confidence, and our intellect, in dealing daily with these questions.

There are those at this moment who do not hesitate to ascribe the existence of man to nature in such a way that to their minds it seems there was no place left for the creator—for the overruling providence. Now, who shall tell us whether those who advocate such views are wrong or are right? Who shall tell us unless every point under discussion is available to every one who has an interest in the question? The man of business who has property, before he invests it, considers what are the securities which will save him from great loss. Why should not a man who invests in a faith examine with the same severity what is the value of his investment, what confidence he may place in the doctrine he is to adopt? I say scientific investigation attacks all the doctrines which have ever been advanced. There is nothing stable now. It seems as if everything must pass through the ordeal of a new examination before it can stand in the future. It is rather a sad condition of things. Most men, being unprepared to judge for themselves, become indifferent, and indifference will never look far. Indifference is

the worst condition of man, and one which clogs all progress. And so, under such circumstances, I advocate an extensive familiarity with all the developments of science, even in the schools, so that the rising generation will be prepared to meet the fact and meet the question.

To prepare the way for this, I wish to lay before you some general statements concerning the efforts of scientific men, the aims that they have in view, and the difficulties under which they may labor. That I may do this with more precision, I have selected for my illustration a subject with which I am more familiar—the Natural History of the Animal Kingdom.

As generally understood, this study consists in being made familiar with the variety of animals which inhabit the surface of the globe, with their modes of life, with their uses, and perhaps with a sketch of their relations to one another. But nowadays the efforts of naturalists go far beyond this. They aim at nothing less than understanding how animals come to be called into existence, what are their relations to one another, and to the world on which they live, and the cause from which they arise. And it is not to be wondered at that in dealing with so comprehensive a subject opinions should vary, and that there should be a mighty conflict among the most earnest of devoted students of nature. Do we not disagree in our deliberations concerning the welfare of our fellow men? Why should naturalists, who are dealing with subjects which have attracted attention for a shorter time, be at once agreed upon every point? They have no greater power with which to treat this subject than an able lawyer has in dealing with his case, or a physician in dealing with his patient, or the divine in dealing with questions of greater import to every human soul; and these powers being limited, it is natural that their results should frequently be conflicting. But the more conflicting they are the more likely are they to stimulate to renewed efforts, and to greater and more comprehensive application.

I shall not attempt to define animal life, nor attempt to compare animal with vegetable life. I shall at once proceed to show what we know generally concerning the resemblance among animals, and on what these resemblances are founded, so that you may understand how it is possible to become famil-

iar with those hosts of living animals which inhabit the surface of the globe. There are several hundreds of thousands of different kinds of beings, and yet all these hosts are built on a few patterns so simple, so easily understood, that every child ought now to know them and be able to distinguish these plans of structure with the same readiness with which it distinguishes a square from a circle; and there is no more difficulty about it than there is in understanding the most elementary matter in geometry or in arithmetic. The only difficulty lies in the fact that there are no teachers; that the community lacks teachers in these departments; and whenever there are a few educated they are at once swallowed by the numerous institutions of learning which are organized everywhere, and we cannot educate a sufficient number of them for the simple reason that there are other walks of life more promising in the reward they secure to their devotees. So science is always behindhand, and yet it is she who furnishes the primary material for all purposes in modern times.

The plans of structure within which all animals range themselves are: 1. RADIATES, divided into three classes—the polypi, acalephæ, and echinoderms. 2. MOLLUSCS, also divided into three groups—acalephæ, gasteropods, and cephalopods. 3. ARTICULATES, illustrated by worms, insects, and crustacea. 4. VERTEBRATES, divided into four classes—fishes, birds, reptiles, and mammalia. All animals are found within the four general types enumerated, and, on closer scrutiny, are found to belong to one or the other of the thirteen classes. These four types are so distinct that they are really ideas. It is not the mere fact that there are worms here, and insects there, and crustacea there, and that they are scattered all over the globe; they are connected with one another by an idea which the human mind is capable of understanding and of reducing to the simplest formula. Examining the relation of man to the other living beings, we observe that his position is easily determined, and without any very extensive acquaintance with anatomy we can compare man with the structure of the fish and we shall find that he has nothing but what the fish has, and that there is a gradation from the fish up to him which is perfectly simple.

[The Professor, by means of a blackboard, illustrated the ap-

pearance of the embryo chicken in the shell.] This fish-like lump is the young chicken. It has the respiratory organs of a fish, but these gills vanish and give way to the formation of lungs. The young bird has a fish-like appearance at first; it then assumes the character of a reptile, and ends by the assumption of the character of a bird. The mammalia begin in the same way.

[The Professor, by means of the board, explained the resemblance of the structure of the vertebrates.] The only difference in the condition of man is that the head predominates, and limbs and stomach and other organs are kept in subordination, under the control of the brain, of the intelligence. We might truly say that man is only a higher organization, an intellectual creature built upon the plan which is indicated in the condition of the fish. In fish the brain is a cord that has three swellings in front. [Illustrated on the board.] One of these swellings goes to the olfactory organs, another to the optical organs, and the third to the organ of hearing; the other end, or the tail, goes to the nerves of the body. The brain and spinal marrow are on a level horizontally, as is the position of the fish when swimming. In reptiles the head is raised, and not only raised somewhat, but the anterior and middle parts of the brain are different in relation to one another. The foremost part is larger than the middle, and the middle is larger than the end. In birds, the anterior part is very large and preponderates over the others, and is much higher than the spinal marrow. We come to man and find that his brain is over the spinal marrow, showing that the brain controls the whole system, and there is no progress beyond him. Examine the structure of man and animals, and you will be convinced that when these animals were created it was designed that man should be at their head; and he was endowed with powers superior to the whole animal kingdom; and that being the case, we must infer that it was the intention, even at the beginning of the creation of fish, hundreds of millions of years ago, to bring into existence man, who should be the highest work of creation; and if that be so, it places serious responsibilities upon us. We are the lords of the earth, and intended to be so by Almighty God.

But the relationship of man to the other animals is still more

intimate than would appear from what has been already said. For, if we examine the mode of growth, we are struck by the fact that each one of these types, perpetuated by the reproduction of another akin to itself, passed during its growth through a succession of changes which are identical to the differences which are observed among those that have reached their perfect condition in their relative standing.

[To make himself thoroughly understood, the Professor traced the stages of growth in certain animals, and indicated the close assimilations which animals in the embryo state take to other animals beneath them in the scale of life. As illustration he chose the jelly-fish and the butterfly, and he made the remark that the graduation in the complications of structure characterizing the different classes was repeated in the patterns which animals present in their respective stages of growth. This showed that there was one and the same kind of thought pervading the whole.]

But this is not all. In the order of succession of animals throughout time there are the same ideas reproduced. In each of the geological periods we have animals and plants differing from one another as they differ now from those now living. Let us see in what way animals have arisen upon earth. It is not true that only the lowest have made their appearance first. We have polypi at the beginning and through all time; we have acephelæ from the beginning and through all time; we have echinoderms at the beginning and through all time. So that it is impossible to consider these animals, which at all times have been contemporaneous with one another, as the ancestors of one another, for no contemporary is the ancestor of another. With many mollusks it is the same. So with crustacea and other articulates, excepting insects. Insects began in those periods which were more closely connected with the carboniferous age; but once introduced, insects continue to the present day. Now certainly none of these animals could have been derived from the others. Perhaps an insect might, if it could be proved. How about the vertebrates? Here I shall show how difficult it is to be positive. In the opinion of some naturalists we have had fishes from the beginning until the present time; in the opinion of others fishes did not begin before the Devonian age.

It might be asked, Are naturalists so ignorant that they cannot recognize a fish from another animal? The difficulty is greater than may appear, for we do not find the remains of these animals of past ages perfect specimens, as complete as we find a fish in the market. We find some of its parts—some of its bones; and the remains of vertebrates found lowest down in the strata are only spines and teeth. The spines resemble the spines of some crustacea—the king crab—and some naturalists say they are king crabs. The certainty will be obtained when we have whole specimens which will be unmistakable, or when these spines and teeth have been examined microscopically, so as to leave no doubt that the teeth are *bona fide* teeth of fish, and the spines *bona fide* spines of fish, and not possibly spinous appendages of the king crab.

Here comes the point where naturalists have those difficulties amongst themselves—differences which no doubt are exaggerated by the community when they believe that we have no solid knowledge in all our departments of science. To know where uncertainty begins, and where certainty may be reached, requires familiarity with the whole. This shows that the number of those who are competent should be increased—that the number of those who have acquired familiarity with the subject should be greater—that information might be made so precise that all doubt should vanish. It is in consideration of this desirable state of things that I appeal to you to foster all efforts that are making for the advancement of science, and you will see that this knowledge goes further in its consequences than appears at the surface. These matters I have spoken about are facts; they are more than facts—they are indications of something superior. If these animals are related to one another in the manner in which I have shown, in consequence of a plan, there is thought that laid out the plan; there is a mind that determined the plan; in fact, the whole animal kingdom is the work of intelligence. But if those things are derived the one from the other, they might be—and they are so represented by a school of naturalists of the present day—the work of blind forces—of forces without intelligence, without discriminating power, without forethought; and you will see at once that the study of Nature is every day not only encroach-

ing upon philosophy, but upon our very creeds. I see the day when all thinking men will appeal to the evidences of Nature to determine whether we ourselves are descended from monkeys or lower animals, or whether we are the work of a Beneficent Father. Indeed, it will no longer do for the coming generation to say, "I will accept this or that doctrine," because knowledge is pressing into our ears, and we can say, "You may know it; therefore you must know it, and unless you are willing to learn it you may grow up in ignorance and be the tool of a designing priesthood." This is the position that stares us in the face for the future; and it becomes, on that account, the duty of every thinking man to foster knowledge, to foster study, and to prepare the coming generation with all those appliances which lead to an intelligent opinion in all these matters. For the first time is that question pressed upon you. You have, for the first time in your existence as a State, a generation which is about to enter the University, and your children now approach the time when they may prepare for college. It is your duty to have a college which will satisfy the highest aspirations of the coming generation, and you must not be willing to depend for their education upon the bounty of other States.

When in your prosperity you have rivaled all civilized communities; when you see luxury here as in the oldest States in the world; when you see here appliances for all the comfort of man applied to the highest degree—are you willing that your children should go and seek an education at the door of other countries? It is for you to educate them and give them those means which shall make them find at home, under the supervision of a father and mother, those advantages which otherwise you will have to seek for them by parting from them in those years when character is being established. But there is another consideration than that of your immediate interests here. No community can be truly great without culture. Culture is the accompaniment of every great community. It is, in fact, the true and only test of real greatness, and history admonishes us in the most pregnant manner that this is true, and that the fate of nations depends upon true culture. Compare two States that have gone out of existence, and that have been drowned in the course of time. Compare them in the memory of mankind. Carthage—

that powerful Carthage which made Rome tremble—what has she left? A pile of ruins, the position of which is barely known, and nothing else which can benefit mankind. Turn now to little Athens—the model of all culture. From her we have learned eloquence, poetry, philosophy, the arts. Will you allow your community to share the fate of Carthage, or will you show that all your luxuries and all your comfort shall be embellished by Attic song in the future? It is for you to decide.

[ERRATUM.—On page 159, eighteenth line from bottom, for *acalephæ* read *acephalæ*.]

TRAINING FRENCH FEMALE TEACHERS.

As we have already hinted, no person is allowed to teach in France without a Government certificate, or "*brevet de capacité*." These are furnished after the prescribed examinations, by the rector of the academy of the department to which the applicant belongs. Such certificate can be used only within the department in which it is given; but the certificates given in Paris are valid throughout the country. Confining our inquiry only to women, we find these examinations succeeding each other at intervals of about three years. The first is passed at about eighteen, and is limited to the elements of education in its simplest branches. Yet great accuracy is insisted upon; and unquestionably one may be sure that a person who has passed it knows thoroughly the work she has undertaken. She cannot be wholly ignorant of domestic economy, or the business talent requisite for country women. She must be able to make a shirt for a man, and a chemise for a woman; and how to teach the sewing of all kinds of seams, and the simpler sorts of embroidery. Successful candidates who pursue no further studies expect to be employed in the lowest primary schools in the country villages, or as governesses for very young children.

The second examination requires a thorough and comprehensive knowledge of the French language—its history, grammar, and literature—a good understanding of arithmetic and plane geometry. (The French do not make so much of algebra for girls as we do.) She must also know history, ancient and mod-

ern, the elements of natural science, and be acquainted with general literature; not merely as one gains it from compendiums, etc., but from actual study of the works themselves. Although a knowledge of Latin and Greek is not expected, the examination presupposes veritable study of the classics by means of translations. This certificate entitles a woman to a place in the higher primary schools; or, if she wishes to open a private school, she has the right to call it a *pension*. The larger portion of private governesses for young ladies are of this class. This explains the parenthetic *diplomée* which appears in the *Times* advertisements of French governesses. A Russian or German family in Paris, desiring to engage a governess, would first of all ask for her diploma.

The third certificate permits a woman to open an institution, in which those of the second grade may hold the position of *sous-maitresses*. It is rarely taken by a person under twenty-four years of age. It requires not only a knowledge of books and facts, but also a maturity of reason and judgment only attained by long and patient study. The candidates must have a clear understanding of such subjects as the philosophic principles of the *Haute Grammaire*, and of logic, the rules of art, the canons of taste, and the philosophy of history. They must have studied not only the present French code, but also the principles of common law.

It is obvious such work cannot be accomplished by mere cramming. Women who are really prepared for such an examination must have made the knowledge acquired a part of themselves; must have developed their minds by it, so that they may truly be called wise. We range over so many things, that we are coming to measure the value of acquirements by their variety; and we have fallen so far into thinking thoroughness means a multitude of details, that the simpler education of French women may seem scanty. No mistake could be greater; for it admits of incontestible proof, that the well-trained French woman is more than the equal of the English or the American. I mean, of course, to compare those who have had the best of the distinctive training of each country. Such a French woman has a steadiness of judgment and a clearness of reason that seizes the vital point in a question, and weighs and decides

justly. There have always been adverse influences at work in France, especially upon women, to cramp and dwarf their whole nature; but for all that, if we ever quit creating French women from our own fancy, out of the materials of romances and fashion-plates, we shall find the real women the most sensible, the most intelligent companions for men, because the most nearly their equals; and what may seem an anti-climax, but what is of vital interest to us in the lessons they can teach, they are the model business women of the world.—*"Old and New" for July.*

NATURAL SCIENCES AND INDUSTRIAL EDUCATION.

THE question of compulsory education is settled, so far as nature is concerned. Her bill on that question was framed and passed long ago. But like all compulsory legislation, that of nature is harsh and wasteful in its operation. Ignorance is visited as sharply as willful disobedience—incapacity meets with the same punishment as crime. Nature's discipline is not even a word and a blow and the blow first, but the blow without the word. It left to you to find out why your ears are boxed.—*Huxley.*

SCHOOL GARDENING.—This subject, which was recently discussed by Potomac fruit growers, we condense from a report in the *Maryland Farmer:* Mr. J. L. Smith gave the description of a German school. In the rear of the school buildings there was a large garden which was divided into squares of about 125 square feet each, and which was entirely devoted to the use of the pupils. Those scholars who distinguished themselves in behavior, application, etc., were picked out and divided into clubs of three. Each of these clubs was assigned the use of one of the aforesaid squares, which they were to cultivate themselves with flowers, vegetables, and various kinds of fruits. The tools were furnished by the school, while the scholars found the seed. During the recess, instead of climbing about or indulging in other dangerous plays, it was the greatest pleasure of the scholars to work in their garden. Those who did not take particular care of their

portion were dismissed and others put in their places. On that account each scholar tried to excel the others; each tried to lay his portion out in the most handsome design; each wanted to have the prettiest flowers. In fact, it was a pleasure to look at the gardens, to see as many different designs as there were squares, each filled with the most beautiful and fragrant flowers, and making itself a great instructor. Col. Chamberlain was glad to hear these facts, but said it was doubtful whether boys within school generally would allow the fruit to mature—the result of the experiment would be a scramble for the ripening prizes. Mr. Smith replied that it was an important object to train youth to regard and esteem these useful matters in the right light, to use them at the proper times, and not in the least degree to prove themselves to be selfish pilferers.

INFLUENCE OF TREES ON CLIMATE.—The subject of the influence of "foresting," or of the planting of trees, upon the climate of a country, and of "deforesting," or destroying the forest growth, continues to excite much interest throughout the world, as it is now well established that the climate of many localities has been materially altered by one or the other of these processes. Systematic efforts have been made, in different parts of the world, for introducing a growth of trees where these had either disappeared or had never been known, from which important results have followed in many instances. We well know the effect upon the climate of India of planting extensive forests of different species; and we are informed that, as a consequent of a similar experiment, Egypt, which formerly had only about six rainy days every year, since being replanted on a large scale, has already attained to twenty-four. Among the enlightened measures of the administration of the French Government, one which is especially noteworthy is that of planting immense tracts of land in Algiers, especially with Australian trees, namely, the *Acacia mollisima* and *Acacia lophanta*. Plantations of these trees, started a few years ago, have attained a hight of from nine to twelve feet, and in their rapid growth and great extent have already changed the climate very much—twice as much rain and dew falling in the neighborhood as before. Under the same auspices, sixteen square miles of the swampy, unhealthy country

along the coast of the Bay of Biscay was planted with millions of trees—especially of cork, oak, and swamp pine—with surprisingly beneficial results, the trees having drained the land so as to destroy the swamp fevers, and to change it into a healthy country with pine forests. Biscay law requires that for every tree cut down two shall be planted, and it is said to be executed with rigorous severity.

TABLE—*Showing the number of plants required to plant an acre of land, from one foot to thirty feet apart.*

Distance—feet.	No. per acre.	Distance—feet.	No. per acre.
1	43,560	11	360
1½	19,360	12	302
2	10,890	13	257
2½	6,970	14	222
3	4,840	15	193
3½	3,556	16	169
4	2,722	17	150
4½	2,151	18	134
5	1,742	19	120
5½	1,440	20	100
6	1,201	22	90
6½	1,031	24	75
7	889	26	64
8	680	28	55
9	537	30	48
10	435		

SPEEDY GROWTH OF RADISHES.—We are informed by the Acclimatization Society of Palermo that radishes may be obtained at any season, and very quickly, in the following manner: The seeds are to be first soaked for twenty-four hours, and then placed in bags and exposed to the sun. They will begin to germinate in about twenty-four hours, and are then to be set in a box filled with well manured earth, and moistened from time to time with lukewarm water. In five or six days the radishes will attain the size of a small onion. To grow radishes in Winter, the box is to be placed in a warm cellar, covered with a top, and the earth moistened from day to day with lukewarm water.

GUM TREE.—In this plant we may have a very important addition to our material resources. Its great merit consists primarily in its adaptability to regions otherwise unsuitable for the growth of forest vegation, in the extreme rapidity of its growth, and in the great value of the wood for economical purposes. When planted in marshy land it has a very decided effect in draining the soil and freeing it from a malarious tendency, while it is said to thrive where the annual rainfall is scarcely sufficient to keep ordinary trees in proper vigor. As is well known, trees having this rapid growth are generally soft and spongy, and of comparatively little value for timber; but the gum is quite the reverse, the wood being very heavy and hard, resisting the action of air and water, as well as of most kinds of insects. In general properties it resembles the wood of the oak, and it is employed very largely for ship timber in Anstralia. The growing plants disseminate an aromatic fragrance, which is supposed to be conducive to health. This is due to the volatile essential oil, which can be readily collected, and is known as *eucalyptol*. The leaves furnish two and one-half per cent. of their weight of this substance, which has come into use already as a solvent of resins, and even of caoutchouc; and it is warmly recommended for the manufacture of varnish. It is also valuable as a febrifuge; and on this account, in Spain and the south of France it has been made to replace quinine with decided advantage. Paper prepared from its bark answers for packing. One ounce of sifted fertile seed contains 10,112 grains.—*Science and Industry.*

NATURE.

"Nature never did betray
The heart that loved her; 'tis her privilege
Through all the years of this our life to lead
From joy to joy; for she can so inform
The mind that is within us, so impress
With quietness and beauty, and so feed
With lofty thoughts, that neither evil tongues,
Rash judgments, nor the sneers of selfish men,
Nor greetings where no kindness is, nor all
The dreary intercourse of daily life,
Shall e'er prevail against us, or disturb
Our cheerful faith that all we behold
Is full of blessings." *Wordsworth.*

DEPARTMENT OF PUBLIC INSTRUCTION.

Several notes and queries are on file in this office, and will be answered next month. Will the correspondent who asked us how "Trees cause springs to flow continually, and prevent destructive floods during the rainy season," favor us with his address?

Decision on School Tax.—G. W. Ware, of Colusa, declined to pay his school tax levied and assessed under the provisions of section ninety-nine of the California School Law. The matter was brought up in the Tenth District Court, and Judge Keyser rendered the following decision:

The People vs. G. W. Ware.—This action is brought to recover a school tax levied and assessed under the Act of April 4th, 1870. (Statutes 1869–70–p. 824.) The facts, as they appear from the stipulation on file, and the argument of counsel, are that on the 14th September, 1871, the Board of Supervisors of Colusa County levied a special school tax of five cents upon each one hundred dollars worth of taxable property in the Colusa School District; that on the 27th of the same month and year they levied an additional special school tax of thirty-eight cents on each one hundred dollars' worth of taxable property in said district; that prior to these several levies the County Superintendent of Schools of the county furnished to the Board and to the Tax Collector, respectively, an estimate, as provided in the ninety-eighth section of said Act, from which it appeared that there was a deficiency in the School Fund of said district; that to meet such deficiency, and after receiving the assessment roll from the County Assessor, the Board of Supervisors made the above named levies; that after said levies were made the property of defendant was not listed nor assessed, but the amount of tax to be paid by defendant was ascertained by a calculation based upon the assessment of his property as the latter appeared listed and valued on said assessment roll: that the said levies were made subsequently to the first Monday of September, 1871—the first on the 14th and the second on the 27th of said month.

Two points are relied on by defendant's counsel: 1. The levies are invalid and void, because made after instead of before the first Monday of September. 2. That after they were made there was no new assessment, no new listing and valuation of the property of the School District by the County Assessor for the purpose of ascertaining how much each piece or parcel of property in the district should be charged with.

It is a familiar and well settled rule that where a statute requires an act to be done by an officer within a certain time, for a public purpose, the statute shall be taken to be directory merely, unless it contains some negative word or words restraining the doing of the Act after the time specified; or it appears from the nature of the Act or the language used by the Legislature that the designation of time was intended as a limitation. (Blackwell on Tax Titles, 156; Hill vs. Wolfe, 28 Iowa, 577; St. Louis Co. vs. Sparks, 10 Mo., 117; *Ex parte* Heath 3, Hill 42; Pond vs. Nogus, 3 Mass.: State vs. McClean, 9 Wis, 292.) In the last case the Court says: "Where there is no substantial reason why the thing to be done might not as well be done after the time prescribed as before; no presumption that, allowing it to be so done, it may work an injury or wrong; nothing in the Act itself or other Acts relating to the same subject matter, indicating that the Legislature did not intend that it should rather be done after the time prescribed than not be done at all; then the Courts assume that the intent was that if not done within the time prescribed, it might be done afterwards."

Tested by these rules and those laid down in the other cases above cited, the assessment in the case at bar was legal and should be enforced. With regard to the second point we have no other guide but the statute itself; and upon a careful examination of section ninety-nine I am forced to the conclusion that the assessment made by the County Asssessor for State and county taxes is to be adopted by the Board of Supervisors in levying the special school tax which, by that section, is authorized and directed to be raised. In conclusion I may add that the authorities cited by defendant's counsel are not at variance with those above quoted.

Judgment for Plaintiff.

Phil. W. Keyser, Judge.

AT a meeting of the State Board of Examination held at San Francisco October 5th, 1872, it was resolved to examine hereafter applicants for State certificates of the third grade in word analysis and in the history of the United States. The questions will be based on the text books already adopted and in use.

OUR UNIVERSITY.—We extract the following appreciative personal notice from the *University Echo*, published by the students of the State University. We know that they express not only the feelings of students, but of all who know the gentleman referred to :

"OUR RETIRING PRESIDENT.—The years of manly strength have passed away, and in their flight have stolen the physical vigor of a noble life. The years circle back three score and ten into the past, and a half century of lofty effort mingles its impetus in the world's deeper history. President Henry Durant will be at our head no longer. His wisdom, his sentiment, his sympathy, his personality, have nourished our young University with the elements of a bright career, but the infirmities of age call him from the recitation room and lecture hall. He takes off the sacred robe of teacher and leader and blesses it to another, and from this home of his life-time, home of his joy and care, home of his pleasure and toil, of his love, his hope, and his success, he goes out. Fifty years in the school room, and now the door closes! Although he leaves the home of his manhood, and his strong energies have been spent, yet these energies will be resurrected again and again into glorious life, and his home will ever be fresh and green with the flowers of his own planting. It is our privilege to be numbered among those who listened to the instructions of President Durant, and we shall ever esteem it one of our brightest associations. But his power is not in his instruction, his philosophy only ; a philosopher only is not a man. But in addition to his knowledge of science and art and literature and philosophy, deeper flows an universal sympathy and faith in humanity, and higher opens the spirit to divinest communion and marshal activities to loftiest motive. The student looks to such a one with love, with reverence, and regretfully bids him farewell. As thus we bid adieu to our revered President, we express the hope that his past and present vigor may be the promise of another decade of peace and cheer, and that our University, the dream of his hope and the child of his head and heart, may grow strong in the principles he maintained and the life he infused.

WILLARD B. RISING, recently elected Professor of Mining Metallurgy in the University, returned from Germany on August 23d, after an absence of three years. He spent two years in the Heidelberg University, where he received the degree of Doctor of Philosophy, and afterward one year in the University at Berlin. Professor Rising held the Professorship of Chemistry in the old College of California, and maintained it most creditably. He is a young man, full of American energy and the zeal of the true scientist, and we doubt not that his department will soon secure that wide and prominent interest it deserves.

AT a meeting of the Trustees of the State Normal School it was resolved that the training classes should be located on the first floor, and not in the basement. The very best is good enough for children. The next meeting will be held in the new building, October 25th.

PROF. CHARLES H. ALLEN, formerly of Wisconsin, enters upon his duties in the State Normal School at San José on Monday, October 7th. He takes charge of the following studies : drawing, vocal music, and natural sciences (physics and chemistry).

MISS TITUS, the teacher elected to take charge of the Normal Training classes will enter upon her duties at the beginning of November.

ENCOURAGING.—The Board of Supervisors of Monterey County have promised to maintain an eight or ten months' school in every district of the county. The number of pupils in attendance at Salinas City is two hundred and one. The School Trustees have made provisions for a fourth teacher.

SUISUN CITY is building a fine schoolhouse, at a cost of about eight thousand dollars. It will be finished by the first of December.

COUNTY INSTITUTES.

THE MONTEREY COUNTY TEACHERS' INSTITUTE was a live one in every sense of the word, for every teacher contributed to make it so. Over fifty teachers were in attendance. Rev. Addison James and others delivered practical and interesting lectures.

THE TEACHERS' INSTITUTE OF CONTRA COSTA COUNTY, which met at Pacheco, October 1st, and held a four days' session, was well attended. The exercises were well selected and instructive. Miss C. E. Greer's Exercise in Local Geography deserves special mentioning; her exercise, conducted with a class of small pupils who had never used a text-book, was a real object lesson, and illustrated from the immediate sphere of the pupils. H. I. Tillotsen's Essay on Grammar was excellent as pointing out the defects in the current system of teaching grammar, but incomplete because it suggested no remedy for those defects in teaching. The State Superintendent, and Professors Knowlton and Carr, were the lecturers. The following resolutions were adopted: *Resolved*, That henceforth the Contra Costa County Institute be conducted by class exercises during the day, and lectures and essays in the evening. *Resolved*, That the teachers of this county dispense with the use of text-books in the school-room as far as practicable in class exercises, and that the "object system" be adopted when possible. *Resolved*, That the thanks of this Institute are due, and are hereby tendered to Hon. H. N. Bolander and Professor Knowlton for their practical participation in the Institute, as well as their more extended lectures; and to the County Superintendent, for the able and appropriate manner in which he has presided over the sessions of the Institute, and to our worthy Secretaries, for the faithful manner in which they have recorded the proceedings of the Institute. *Resolved*, That the "Course of Studies" furnished by the State Board of Education embraces much that is useless, and should be simplified that it may be practical in all departments of our common schools. *Resolved*, That we view with pride and approbation the importance of Teachers' Institutes, as shown forth by the actions of teachers and other learned men and women in all parts of the world in conducting Institutes and educational conventions. *Resolved*, That where education most abounds, these meetings are best understood and most highly appreciated. *Resolved*, That the medical and other learned professions in their Conventions show us an example worthy of emulation. *Resolved*, That the clergy and Sabbath School officers have added much to the interest of Sabbath Schools by the adoption of our Institute system. *Resolved*, That a teacher's "ability" may be somewhat accurately measured by the degree of interest manifested in the exercises of a school Institute. *Resolved*, That all the teachers holding First Grade (with one exception), and most of those holding Second and Third Grade Certificates, have manifested an interest, and shown a knowledge of their profession by attending and participating in the exercises of the present session of the Contra Costa County Teachers' Institute.

EDITORS' TABLE.

[Mr. John Swett is the responsible Editor of this Department.]

THE MEANEST THING YET.—At the beginning of the school year in August last, the Board of Education in Boston raised the salaries of Principals of Grammar Schools from three thousand dollars to three thousand two hundred dollars a year, and the salary of Vice Principals from twenty-four hundred dollars to twenty-six hundred dollars a year. San Francisco pays her Principals only twenty-one hundred dollars, and Vice Principals only fifteen hundred dollars. Penurious Boston and liberal San Francisco! The salary of Walter Smith, teacher of industrial drawing from the London Art School, is six thousand dollars a year. The salary of the Principal of each of the five High Schools in Boston is four thousand five hundred dollars; of the High School Assistants, three thousand five hundred dollars. Boston pays the highest public school salaries in the United States, and has by far the best system of common schools of any city in the Union.

PERSONAL.—Professor Leggett, the well known ex-principal of the Grass Valley High School, has taken to a law office. Reason: the low salaries paid to teachers. Though we regret to lose so brilliant a man from the occupation of teaching, we admit the soundness of his judgment. He is still incidentally engaged as a teacher in the Evening Normal School of San Francisco.

RAISING THE STANDARD.—The City and County Board of Examination in San Francisco has unanimously resolved that after June next, no third grade certificate, having a lower per cent. than seventy-five, without including extra credits, shall be renewed. They incline to the opinion that, as the city has provided a free evening normal school, it is best for low grade teachers to attend it.

NEEDED.—Evening schools ought to be established in each of the following cities: Sacramento, Oakland, San José, Stockton, Los Angeles, Marysville, Vallejo, Petaluma, Grass Valley, Nevada, and Chico. Why do not the City Superintendents and the leading teachers move in the matter?

STATE UNIVERSITY.—The number of students admitted in the Freshman class at the beginning of the school year in September was sixty. Students are now admitted into the College of Letters on an examination in Latin without Greek. They begin Greek in the University.

STATE NORMAL SCHOOL.—The number of pupils in this school is only eighty-five, the smallest number in the school within the last six years. The building is now considerably larger than the school.

LEIGH'S PHONETIC SYSTEM.—This system of teaching reading in primary classes is used almost exclusively in Boston and St. Louis. They say it saves one half the labor involved in the old method.

OAKLAND.—The Oakland Board of Education has elected A. F. Craven as Principal of a new grammar school.

FRENCH AND GERMAN.—The number of pupils studying German in the San Francisco public schools is four thousand four hundred; studying French, three thousand; studying both German and French, one thousand.

STATE UNIVERSITY.—George W. Bunnel, formerly Principal of the San Francisco Latin High School, has been appointed assistant teacher of Latin and Greek in the University of California.

EVENING SCHOOL.—The San Francisco evening school numbers nine hundred pupils. It is a graded school which includes drawing and bookkeeping in addition to the common branches.

PHONOGRAPHY.—Phonography has been introduced into the First Grade Grammar Classes of boys, San Francisco, and into the High School. The world moves.

SIX THOUSAND DOLLARS.—The salary of the Boston Superintendent is six thousand dollars a year, and a horse and carriage furnished by the city.

THE PUBLIC SCHOOLS OF SAN FRANCISCO.—From the nineteenth annual report of the San Francisco Schools, including the report of Superintendent Widber and of Deputy Superintendent Swett, we glean the following items: There are fifty-two thousand children under fifteen years of age, of whom thirty-two thousand are between five and fifteen years of age, and of whom twenty-five thousand attend school. The whole number of teachers employed is four hundred and eighty, of whom sixteen are in high schools, one hundred and twenty-eight in grammar schools, two hundred and ninety-five in primary schools, thirty-five in evening schools, and six teachers of music and drawing. The average number belonging to the schools is three hundred and twenty in high schools; four thousand in Grammar classes; fourteen thousand in primary classes. Expenditures, six hundred and sixty-eight thousand dollars. The annual cost per pupil is thirty-one dollars and thirty-nine cents; for tuition only, twenty-one dollars and twenty-six cents. Concerning the educational condition of the schools and the annual examination, Deputy Superintendent Swett says: "The expectation that the cutting down of the course of study to something like sensible limits would be productive of good results, has been fully realized. Nearly all of the first grade pupils sent up for examination to test their fitness for entering the High School, passed the most searching examination ever given in this city, in a manner that reflected great credit on the training they had received during the year. The result was a pleasant contrast to the lame and impotent conclusion of last year. In all the lower grades of most schools at least four fifths of the pupils were regularly promoted. The new course of study, judged by results, is evidently an improvement on the old course; but it has some serious defects. In fact, so long as teachers depend mainly on text books, and so long as some of the inferior school books forced on the city by the State Board are continued in use, it is utterly impossible to adapt a practical and rational course of instruction. It is to be hoped, now that the State Uniformity Law is repealed, that during the next two years some gradual changes may be effected, and that the course of study may be revised and improved. The number of girls sent up to be examined for graduation from the Grammar Schools and admission to the High School was two hundred and nineteen, of whom one hundred and fifty-eight passed. The number of boys examined was one hundred and twenty-three, of whom ninety-six passed.

Arithmetic.—The examination in Arithmetic was the most searching ever given in the city. And while the percentages did not range very high, the average result showed that the pupils had been well trained during the year.

Grammar.—The result of the examination in this important branch of school study was exceedingly satisfactory. Relatively, the questions were not so difficult as in

Arithmetic; still, the examination was thorough. There was a great improvement during the year in the method of teaching a practical knowledge of language. The text-book is now made only the *basis* of instruction, and practical exercises from the reading lessons complement the memorizing of definitions.

United States History.—The questions in this study were more difficult than usual, from the fact that Swinton's Condensed History is something more than a mere catechism. The result was satisfactory, though the percentages did not range very high.

The spelling of the pupils in the composition papers was excellent—those from some schools being absolutely perfect.

Composition.—The examination in this important branch was based directly on the practical exercises specified in the course of study. The papers from some schools were excellent, showing that the pupils had been well trained; from other schools the exercises were so wretchedly written that other evidence was not needed to show that they had been under no training whatever during the year. The course of study provides that the pupils shall be drilled in letter writing in each grade in the Grammar School—the whole making a period of four years; yet many first grade pupils in the examination wrote letters that would be discreditable to the scholars of a Primary School. It seems probable that the letter written during the examination by some scholars was their *first* attempt at letter writing. The class that presented the best specimens of letter writing was that of Mrs. Baumgardner, Denman School; and the second, that of Miss Thompson, Rincon School.

Penmanship.—The specimens of writing of the first grade scholars were generally exceedingly good—good enough for all practical purposes. The handwriting was plain and legible, and in many cases neat and artistic.

Vocal Music.—The examination in music was very faithfully carried out by the several teachers assigned to this duty by the Principals of the various schools. The result shows that the introduction of Mason's System of Music has been followed by unexampled progress and interest in singing. In the whole city only about five per cent. of the pupils were found unable to sing the scale.

Drawing in Primary Schools.—For a number of years, in the primary classes, there has been a little drawing on slates and boards for amusement, but there has been no systematic *training*. Last year, in some classes, Bartholomew's small sets of primary drawing cards were used with excellent results. Mrs. Benton has now been assigned to direct the drawing in Primary Schools. All grades below the fifth are to use Bartholomew's cards. The teacher in each class, under the general direction of Mrs. Benton, is to be held responsible for drawing as well as for vocal music. Mrs. Benton is a skillful and enthusiastic teacher, and the best results may confidently be expected. Drawing is now recognized by all educators as one of the *essential* and practical branches of school education. It is highly creditable to the Board of Education that the importance of drawing is so fully appreciated.

The following table is a summary of the results of the examination:

Grammar Grades.	No. examined.	No. promoted.	No. failed.
First grades	322	247	75
Second grades	771	497	274
Third grades	973	623	350
Fourth grades	1,566	865	701
Total	3,632	2,232	1,400

Primary Grades.	No. examined.	No. promoted.	No. failed.
Fifth grade	2,105	1,284	821
Sixth grade	1,942	1,100	842
Seventh grade	3,504	2,672	832
Eighth grade	4,152	2,794	1,358
Total	11,703	7,850	3,853

The report contains the full sets of questions used in the examination; ten pages in relation to Grube's famous exercises for beginners in Arithmetic; extracts from the report of Newton Bateman of Illinois, against State uniformity of text books. The report concludes as follows:

"In conclusion, I cannot forbear calling the attention of the Board of Education and of all citizens interested in the permanent interests of our schools, to the low rates of salaries paid to Principals and Vice Principals of Grammar Schools. If this matter lies outside of the exact line of my official Report, it is within my professional duty. The salaries of the Grammar Principals of all the larger schools at least, ought to be raised to twenty-four hundred dollars per year. San Francisco can well afford to pay her Principals what the City of Boston pays to Vice Principals, twenty-four hundred dollars. Boston now pays to the Principals of Grammar Schools three thousand two hundred dollars a year. The pay of Vice Principals ought to be raised to eighteen hundred dollars. The salaries of experienced and capable women teaching the various Grammar Grades, ought also to be increased. Good schools cannot be kept up without good teachers, and the best teachers cannot be retained unless they are paid a fair compensation for their labor."

We are authorized to state that any teacher in the State desiring this report in full, can obtain a free copy by addressing the City Superintendent, J. H. Widber, San Francisco.

EDUCATIONAL ITEMS.

NEED OF PREPARATORY SCHOOLS.—Dr. Reid, President of the State University of Missouri, has proposed the following plan for bringing the University into closer relation to the public schools of the State: "1st. The University should take up the studies exactly where the high schools of the State leave off; and to this end there should be laid down by law a course of study for all high schools in the State, which they should be required to follow. 2d. There should be some change in the way of appointing State students to the University. 3d. A system of public libraries in all parts of the State should be adopted and kept up for the use of every country school." Whether this plan or some other is followed, there can be little doubt that the subject of the dependence of the higher educational institutions upon the lower schools, and the connection between them, should be thoroughly agitated and an improvement brought about. While advanced study and higher education is receiving so much attention, let not that which makes the latter possible be entirely neglected.—*Pen. School Journal.*

THE NEW TRAINING SCHOOL AT HAMBURG.—As in Prussia, the course of training extends over three years, besides one or two spent previously in the preparatory school. The different branches of study have been arranged as follows (the figures stand for the first, second, and third years respectively): Science of Education (Pedagogy, including physiology and psychology), 1. 5. 4 hours per week; practical exercises in teaching in training classes, 0. 0. 8; religion, 2. 2. 2; German, 4. 4. 3; English, 3. 3. 2; French, 3. 3. 2; arithmetic and algebra, 2. 2. 0; mathematics (planimetry, stereometry, trigonometry) and mathematical geography, 2. 2. 2; botany and zoology, 2. 2. 0; physics, 2. 2. 0; chemistry and mineralogy, 0. 0. 3; history, 3. 2. 2; geography, 2. 2. 2; calligraphy 1. 0. 0; gymnastics, 2. 2. 2; drawing,

2. 1. 1 ; piano and harmonium. 1. 2. 1 ; violin, 2. 2. 2 ; singing, 2. 1. 4. Will do for slow Germans.

SCHOOLS OF DESIGN.—The Legislature of Massachusetts, in order to facilitate the further culture of its artisans, has passed a law by which the State is authorized to establish Schools of Design in every village. The State is compelled to maintain at least one of such schools in every town of ten thousand inhabitants.

COMPULSORY INSTRUCTION IN NEEDLEWORK.—At least half a dozen of our contemporaries speak in the highest terms of a *brochure* written by a German lady, Rosalie Schallenfeld, in which the authoress advocates the sensible measure of making instruction in needlework an obligatory branch in the curriculum of the public schools for girls. The pamphlet contains, besides, many valuable hints and suggestions on the best method of teaching needlework. Will not do for California—we have no girls.

EDUCATIONAL PROGRESS IN ROME.—The latest statistics concerning the Roman evening and Sunday schools are very satisfactory indeed. Last year there were in Rome sixty-one evening schools, with two thousand four hundred and fifteen pupils, and seventeen Sunday schools, with five hundred and twenty-four scholars. This year she numbers nine hundred and thirty-seven evening schools, with nine thousand three hundred and eighty-seven pupils, and eighty-nine Sunday schools, with two thousand one hundred and seventy-five scholars.

TECHNICAL MUSEUM IN RUSSIA.—Russian journals announce the opening of a special technical museum for children. It is intended to teach the young the processes of manufacturing the various objects used in daily life.

TRAINING SCHOOL FOR LADY TEACHERS IN ITALY.—This institution, conducted by Bertolini, at Bologna, stands foremost among Italy's best establishments of education.

NETHERLAND TEACHERS' ASSOCIATION.—We cheerfully record the fact that an overwhelming majority of practical and thoughtful men accepted the following resolutions ; 1. A legal enforcement of the compulsory principle is necessary for the vigorous suppression of school neglect, i. e., national ignorance and immorality. 2. This meeting is of the opinion that it is the duty to insist on the immediate application of the principle.

EDUCATION IN SWITZERLAND.—A Swiss educationist having had to report on the subject of higher schools for girls, pronounces upon them as follows : "It is advantageous to the moral and intellectual training of both sexes that they are not separated in the schools so long as the aims and objects of education are not dissimilar, and, consequently, the educational means not different."

SHORTHAND WRITING.—Shorthand writing has been introduced into the middle-class schools in Vienna, as well as in the German Empire. In Belgium it has been strongly recommended as a useful branch to be added to the curriculum of scholastic instruction.

THE

CALIFORNIA TEACHER.

DECEMBER, 1872.

VOL. X. SACRAMENTO. No. 6.

THE EXAMINATION OF TEACHERS.

[*Read before the National Educational Association, in Boston, August* 8, 1872, *by John Swett.*]

IT may reasonably be expected, when a man accepts an invitation to prepare a paper for this Association, and travels three thousand miles to read it, that he will condense his thoughts, in the best possible manner, into the fewest possible words.

I am not in the habit of making excuses, but the circumstances under which I appear here to-day require a few words of explanation. During the last of June, just as I was beginning to turn my thoughts to the subject assigned to me by President White, my youngest boy was taken suddenly and dangerously ill. For a long and weary month, every hour of the day that I could spare from the pressure of official duties consequent upon the annual examination of the schools at the end of the school year, and every hour that I could subtract from sleep, was passed in watching over him. For thirty days and thirty nights of alternating hope and despair, as the disease ebbed and flowed, I saw the little life, so dear to us, drifting slowly and helplessly away into the unknown future; and now a little grave, in Lone Mountain, has consecrated the soil of my adopted State to me forevermore.

Two days before I left home, prostrated both physically and mentally, I felt that I must take, as a sad necessity, the trip to which I had looked forward with so many pleasant expectations. My noble wife, herself almost broken hearted, said: "Go, rather than break your appointment." If, in the shadow of a great grief I fail to do justice to my subject, I venture to hope that your sympathy may veil the eyes of criticism. On the long overland journey I jotted down a few rough outlines on my subject, without making any attempt to prepare an elaborate paper. The subject is one that I have had to deal with practically for many years, and one on which I entertain some very definite notions.

There are no flowers on the alkaline plains of the great plateau through which the railroad winds like a huge black serpent writhing under the scorching sun in the hot sands of the barren desert, and any attempt of mine at rhetoric degenerated at once into the driest statements made up of disjointed sentences that break off as abruptly as a train fetches up at a way-station. Should there be anything caustic in my remarks it may be attributed to alkaline dust; and if I fail to decipher my manuscript, penciled on a jarring railroad train, you will bear in mind that it seemed to me, this morning when I ran it over, as if it must have been struck by lightning in the terrible thunder storm we experienced in the valley of the Platte.

By way of introducing my subject, and for the purpose of showing why I entertain radical views on the common methods of examining teachers and of granting them certificates, I am constrained to offer my own experience as an illustration.

Twenty years ago this very month, moved by the migratory instinct that seems to be hereditary in so many Yankee boys, impelling them to take flight in search of warmer climes and richer feeding-grounds, I sailed out of Boston harbor bound for California "round the Horn."

My pocket-book was not plethoric with money, but carefully stowed away in its ample folds there were three certificates, every one of which bore the most positive evidence as to my good moral character, and certified to my "ability and fitness to teach a common school for the term of one year."

One of these, like its holder, had its birth in the old Granite

State. It bore the signature of a "*Deestrict* School Trustee," dear old Deacon Brown, who examined me in the vowel sounds, the consonant sounds, asked me to pronounce *g-e-w-g-a w*, and by way of a clincher required me to define the four parts of English Grammar according to Lindley Murray, *to wit:* Orthography, Etymology, Syntax, and Prosody.

The other two certificates were dated in the town of *Timbuctoo*, in the old Bay State, almost in the shadow of Bunker Hill. I was examined in the dingy office of a cobwebbed old lawyer, who was quite as scientific in his style of doing things as was dear old deacon Brown.

It is enough to say that every one of these examinations was as great a farce as it would be for Vincent Collyer to examine an Apache Indian in mental and moral philosophy and theology, or rather, as great an absurdity as it would be for a green grocer to examine John Stuart Mill in political economy.

I would not rake up old events that happened so near the cradle of the common school system, except that on returning after a quarter of a century, I find that good old way of examining teachers still going on in my native State and in some other States that I do not now care to mention.

I find that the largest city in New England, famed for the excellence of its schools, has *no* system of professional examinations for teachers; that in Utopia the fitness of a man to teach is found but by "intuitive perception," and that men and women who want to teach get their places, not by rank in competitive examinations, but like office-hunting politicians, by "letters of recommendation," by influential relatives, or by austere manners, or by the eminent respectability of dress.

When I reached California I mined until I found myself *dead broke;* worked as a day-laborer on a *ranch*, sought in vain for employment, save only the profession of blacking boots, and at the end of a year looked sadly at my certificates, and as a last, desperate resort, looked round for a school.

I heard of a school, but my old certificates were not current in California, and the flattering letters of Prof. Russell, who taught me how to teach, availed me nothing. I had to be "examined" before I could be patented as "fit to teach a common school in the State of California for one year," and a miserable little school of half Spanish children at that,

The school trustee, a Yankee minister, a man of huge body and enormous pomposity, did his duty with an awful dignity which nobody but a little-minded man in a petty little office can ever aspire to.

It was the same old rigmarole of *readin,' 'ritin,'* and *'rithmetic*, with never a question to test education, culture, or power to teach. After a half day's examination he gave me a certificate, and the school to somebody else.

Then I went to San Francisco. There was a vacancy in the school department. The old examination mill was still running under Yankee management.

Fifteen of us, all in a row like good little boys in school, were questioned "once round" in spelling, "once round" in reading, "once round" in arithmetic, and "once round" in geography, by the Superintendent and the Mayor—the former a Vermont Yankee, and the latter like unto him, except he hailed from a city nigh unto Boston, where they gibbeted witches instead of teachers. I was told that I ranked first of the batch, and of course somebody else who had "influence with the Board" got the place. The successful somebody this time was a young doctor without patients. Pretty soon the "big boys" "thrashed" the doctor, and I was allowed the privilege, at one hundred and twenty-five dollars a month, of conquering a peace by subduing the young hoodlums, or of meeting the fate of my predecessor. This was how I became a schoolmaster, and how I won my way into the noblest profession—I think that is what they call it sometimes in educational conventions.

For eight successive years I taught the same school, and—I am ashamed to own it, and would not tell it were it not necessary to illustrate what I intend to present—I had the cowardice, like other teachers with me, to submit to eight annual examinations in order to determine my fitness, at each annual revolution of the sun, to teach the same school each succeeding school year.

Nor was this the end of humiliation and insult. After getting a "bran new" certificate at the end of each year, before I could go on again, I had to be elected by the votes of twelve members of the Board of Education, because my term of office lasted only one year. During all those memorable years the

talent that I displayed in "electioneering" would have raised me to eminence as a New York ward-politician, had the same amount of anxiety and hard work been turned in that direction.

This annual election system was handed down to us from the primitive New England "town meetings." I believe that here in Boston, in all New England cities and villages, and in fact in most parts of the United States it is still kept up.

A teacher holds his office only one year, and then he is at the mercy of the whim of any school director or local member of the Board, who may have some spite to wreak or some relative to put in. Much as I honor the occupation of teaching I am not in love with a system that tends to take all the manliness out of a man and all independence from woman. Under such a barbarous system of office-holding, rather than have a son of mine become a common school teacher, I would apprentice him to the trade of a tanner, a tailor, or a shoemaker. He might then stand some possible chance of rising in the political world. For myself, rather than again teach under it, I would contest with Nasby the postmastership of the Confederate Cross Roads.

At length, dragged out of my bed after a typhoid fever that brought me to the verge of the grave—a sickness brought on by overwork, worry, and anxiety—in order to be run through the examination mill a *ninth* time, the hereditary blood of my grandfather, who "fit" in the revolution, rose up in rebellion. I vowed to break up and root out the annual examination farce and the New England town meeting annual election humbug, both of which had followed me across the continent, like the ghost of some grim old Puritan, sticking closer than the accent of Yankee-land in my mother tongue.

So I left the school room, went into political conventions, secured a nomination for the only office ever open to a schoolmaster, that of State Superintendent of Public Instruction, stumped the State, won two successive elections, and the third time, with my whole party, won a defeat; framed a school law; established free schools; lobbied Legislatures; secured a legal recognition of professional teachers; abolished the New England annual examination farce, and in San Francisco finally aided to break up the annual rotation-in-office election system; placed the examination of teachers throughout the State exclu-

sively in the hands of experienced teachers, thereby ruining the occupation and the glory of many a learned committee man; secured life diplomas for experienced and capable teachers; gained a legal recognition of the Normal School diplomas of all State Normal Schools, and by law made valid in California the life diplomas and State certificates granted to teachers in other States.

All these reforms cost me years of hard work and determined effort, and you will understand why I entertain strong convictions on the subject of teachers' certicates. For nearly twenty years, on the western verge of the continent, I have been engaged in a kind of border warfare in education.

My educational notions have changed since I taught school near Boston. Living in a State whose people have been gleaned from every other State in the Union, from France, Germany, Italy, England, Ireland, Australia, and China, new conditions have made new questions to be decided and new issues to be met.

While I fully recognize all that is good in the New England schools, and school laws, and school customs and usages, I take satisfaction for past sufferings by hurling a few brickbats into the windows of the old school house where I was flogged.

I have no desire to ruffle the plumes of the educational Brahmins of Boston, but backwoodsmen fall into a rough way—to use the Yankee vernacular—"of speakin' right out in meetin'." If Boston puritans imagine Europe to be an outlying attachment of the Hub, the Occidental Cosmopolitans, with equal sublimity of self-assurance, are certain that China, Japan, and the Indies are remote provinces of San Francisco. Some of our Pacific people claim that the east winds of Boston are not so raw as those of San Francisco. There are people near the Golden Gate who are quite as confident "that our schools are the finest in the world, sir," as are the lineal descendants of the first Boston master of a grammar school. There are, possibly, a few intermediate points between the two "I's," as for instance St. Louis, Chicago, Cincinnati, New York, Philadelphia, and Baltimore, where persons can be found laboring under the same pleasing provincial self-delusion.

Before touching on the subject of professional certificates, the two weak points of our public school system must be taken into account.

1. Of the three hundred thousand persons that "keep school" in our country, not more than one tenth can be regarded as professional teachers, that is, teachers trained to their business and intending to pursue it for a term of years. From the various Normal schools altogether there are graduated annually not more than two thousand, at a very liberal estimate; and of these at least one half drop out of the occupation in five years. Most of our schools *outside* of our large cities, and many of the lower classes *within* our cities, are *kept*, not taught, by unskilled and untrained labor, at the wages of unskilled labor. The pay of these unskilled "school-keepers" is less than that of any class of artisans or mechanics in any occupation that requires a trained apprenticeship.

These raw "school-keepers" are quite as good as the people deserve, and in most cases better than they ought to get for the wages paid. Until the people recognize the necessity of schools all the year round, until they realize that teaching is an art, until they are willing to pay for skillful training instead of mere school-keeping, the broken Summer and Winter schools kept by young girls waiting to get married, and by boys working their way through college, or into other occupations and professions, or by migratory Ichabod Cranes, must serve the purpose of keeping the children out of utter barbarism by giving them a chance to learn to read and write and to reckon dollars and cents.

The abstract theory of our free school system is fine enough, but the census statistics loom up in fearful significance as a dark back-ground. We shall learn before long that mere reading and writing do not constitute education, and that schoolmasters and schoolma'ms are not necessarily teachers.

It is a quarter of a century since I went to a country school in my native village. I return and find the school no better than when I was a school-boy. That village school is a fair type of many schools all over our country. It will not do to pick out a few cities and shut our eyes to the rural districts.

When I went to school we boys and girls had neither training nor culture. We learned to read and write and cypher, and memorized text-books, but we were not educated; and hundreds

of thousands of boys and girls all over our country are doing the same thing at the present time.

It matters but little how the temporary keepers of schools of this type are examined. Still, there ought to be some plan devised by which the untutored, untrained, and unskilled "school-keeper" shall not be placed on the same footing and paid the same wages as the accomplished graduate of a normal school, or the self-made teacher trained in the actual work of the school room. Schools of this class were well enough in the ruder years of the Republic, when men and women were subduing the wilderness, driving out the savages, and laying the rough foundations of a great nation. But the time is now rapidly coming when in consequence of a denser population, the struggle for existence will become fiercer; when there will no longer be millions of acres of fertile land to be taken up at nominal prices and made productive by unskilled labor. The time is coming when our artisans and mechanics must be trained to compete with those from the technical and industrial schools of European countries.

Our schools in the small villages and the farming districts must be organized to meet this new order of things, and the people must employ skilled teachers and pay them the wages of skilled labor.

2. The other radical defect in the practical working of our school system is the short terms of school officers and superintendents, and their election by direct vote of the people in general elections.

Annual elections suited the genius of New England towns, when the Government was the purest type of a democracy, and when the machinery of great political parties was unknown; but applied to great cities, to States, and to the broader expanse of the West, the short term of office and the annual election have been ruinous in their results, not only in educational offices but in all others.

There can be no steady progress in public schools without long continued systematic efforts, and there can be no *system* when one set of school officials succeeds another as often as the seasons change. When one set of school officers has learned something about the condition and wants of the schools, by some

change in the politics of the city or town, a new set succeeds, bent on reforming the work of their predecessors.

In many parts of our country already, School Boards elected by one political party feel under no obligation to retain in place the teachers appointed by the opposite party, and the outrageous annual election farce, which cowardly teachers have so long submitted to without a struggle, affords a fine opportunity to "drop out" the old ones and run in the new.

Gradually, but surely, the schools are coming to be considered as legitimate party spoils of the victors, and the struggle for positions on Boards of Education in all our great cities is mainly to control the "patronage of appointments."

There has been a great deal of talk about reform in civil service appointments, but the country stands in greater need of reform in the manner of making educational appointments. There is more favoritism, more of politics and church mixed up in the annual appointments of the three hundred thousand teachers in the country than in all the custom house appointments, and there is more ignorance and unfitness for position than in all the post offices and civil service places taken together.

I make no random assertions. I speak from a thorough personal knowledge of one State, and teachers and educators from other States affirm the same condition of things with them. It is undoubtedly worse in the newer States than in the older, and worse in the States evenly balanced and subject to frequent political changes than in the one-sided States always controlled by the same political party. Right here in Boston, the center of conservatism, there is little change, because for twenty-five years there has been no change in the political character of a majority of the Board of Education.

But, each succeeding year, every one of the thousand teachers here feels that it is possible for one single enemy on the Board to secure, by persistent misrepresentation and by trading votes, the removal of any teacher. Occasionally, even in Utopia, it happens that a teacher is "left out," and consequently no teacher can act or can think independently; and it is even whispered that it makes a material difference with a man's chances whether he be a believer in Colton Mather or in Darwin.

If the Boston Brahmins like this condition of petty servitude

to school directors, I am perfectly willing they shall fold their arms with all due meekness and gratitude, leaving the rough work of reformation to outside barbarians. They get better salaries than we do out West, and consequently are conservative.

Until there is a reform in these defective points of our school system, it seems to me there can be no marked and permanent improvement in our public schools as a whole. There will be individual schools that, under superior teachers, will attain a high degree of excellence; but the general average of the schools cannot be raised much higher than it is, because the system neither encourages independent thought nor tolerates progress.

Puttering in conventions over the little details of teaching arithmetic, grammar, and geography, will avail nothing. Men are wanted to shape legislation, to dig out the *debris*, and, with strong and rough hands, to lay the superstructure of a better system of American school supervision and school teaching.

There are some men and women engaged in public school service who make teaching a life-work; who understand their business, and who are earnestly devoted to their work; and the rights and privileges of this class demand a careful consideration.

There are only a few States that have any system of professional examinations by means of which a public school teacher can secure a professional life-diploma, and thereafter be exempted from the humiliation of periodic examinations by petty school officials, just emerging from the babyhood of official ignorance of the whole subject of education. And even if a life certificate can be secured, as in a few States such as Illinois, Ohio, Iowa, or California, it is of no legal value outside of the particular State in which it is granted. California is the only State that recognizes by law the State diplomas and certificates of other States, by placing them on an equal footing with her own. Were I, after twenty years of continuous educational service as a teacher, as State Superintendent, and as Deputy City Superintendent of San Francisco, holding in my possession dozens of defunct certificates and a life diploma of the State of California; were I to go back to my native town and seek employment in my native State, by teaching the little "district school" that I went to when a barefoot boy, I should have to

"pass examination" to determine my fitness to teach a little squad of boys and girls how to read and write. The school law New Hampshire not only fails to recognize the educational diplomas of mushroom States like California, but, with true Puritan stubbornness, neglects to provide her own sons that pick up enough education to become teachers, with any kind of a State document which they can carry with them to the States where they go to earn a living.

It would be the same were I to go "looking out for a school" in Maine, or Vermont, or Massachusetts, or Rhode Island, or Connecticut, or in any State in the Union, except my own adopted State.

Were my esteemed friend, Mr. Philbrick, the Superintendent of the Public Schools of Boston, crowned with the well earned honors of twenty-five years of educational labor, to lose his position at the next annual election, and in consequence, were to emigrate to California to teach school to earn a living, he would have to pass a rigid examination before he could draw a dollar of the school fund for teaching the smallest school in the roughest mining camp in the State. Massachusetts has provided no means of giving her eduational veterans a certificate of public school service.

No State in the Union, except California, recognizes by law the normal school diplomas of other States. In fact, many of the States fail to recognize by law the diplomas given to the graduates of their own normal schools!

An illustration in point: A week before I left home a young lady came into my office, in San Francisco, in search of employment as a teacher. She was a stranger in our State, just arrived from Illinois. She had just graduated from the Illinois State Normal School. I presented her diploma to the State Board of Examination, of which I happen to be a member. A State diploma was at once issued to her, as the law required, and in a week I secured her a good school in one of the pleasantest towns in California. In any other State she would have been bothered and badgered with needless examinations.

There ought to be in every State a State Board of Examination, made up exclusively of professional teachers, including the Superintendent of Public Instruction, having power to issue life

diplomas to experienced teachers of the highest rank, and certificates of lower grades to younger teachers of lower rank; these diplomas and certificates to be issued only upon actual examination, in writing, and the record of examination to be indorsed on the certificates. And there ought to be a system of broad and liberal legislation in all the States, by means of which a professional teacher, holding a diploma or certificate in one State, should be guaranteed a legal recognition in all the other States.

It is true that this need is felt more in the newer Western and Pacific States than in the older States.

For instance, in California our teachers are drawn from every other State in the Union. These teachers must pass a written examination in our State before they can engage in teaching. This requisition often keeps them waiting for several months after their arrival. Occasionally a teacher arives, bringing a State certificate, or a normal school diploma, which is at once recognized under our liberal school law. But most of the States have failed to provide for any system of State certificates, by means of which their teachers can carry with them, when they emigrate, any certificate of professional fitness.

If the older States do not feel the local need of some provision of this kind, they owe a duty to their educated sons and daughters who seek a wider field of action in the newer States. They owe a duty to the cause of National American Education.

In addition to a State system of examination as a means of protecting the public schools against charlatans, ignoramuses, and humbugs generally, it is indispensable that every State have an efficient system of city, county, or township Boards of Examination. These boards ought to be made up of each city, county, or town Superintendent, together with from three to five professional teachers, themselves holders of high grade certificates. They should have power to issue, on actual written examinations, certificates of different grades, valid for periods of time ranging from two to ten years, according to grade. These boards ought to be paid a reasonable sum for their work, otherwise their work will not be well done. They ought to be made up exclusively of practical teachers, for the same reason that only lawyers can legally examine legal students applying for

admission to the bar; that only physicians examine medical students; and that only clergymen pass on the fitness of theological students to enter the ministry. By combining a system of State, city, county, and town examinations, together with inter-State legislation, something might be done to raise the standard of public school teaching.

It is a matter of surprise that so little has already been done in this direction. It can only be accounted for from the fact that nine tenths of the men and women engaged in "keeping school" are intending and expecting to get out of the business as soon as they can. Otherwise they would never submit to the humiliation of successive examinations by small officials, who often know little or nothing about education, but who delight in a little brief official importance.

It is urged against this plan of competitive professional examinations in writing, that "percentages" represent mere scholarship, and fail to gauge the power to discipline, the tact to manage, and the skill to teach.

This may be true to some extent; but it is also certain that, while some good scholars may *fail* when submitted to the final test of the school room, no ignorant person can possibly make a good teacher under any circumstances. There is a grade of scholarship below which no man or no woman is fitted to make a trial of teaching. Above this standard, some will succeed and some will fail. So it is with graduates of the law schools, the divinity schools, and the medical schools.

It may be urged that boards of examination will show favoritism, in issuing certificates to friends. So they will, unless the people elect incorruptible school officers, and appoint incorruptible teachers. The best laws ever framed, and the best systems ever devised, are never binding on corrupt or incapable executive officers.

It may be urged that the diploma of a college graduate ought to be taken as a valid certificate of fitness to teach.

Now, a college-bred young man may or may not be qualified to teach. I have known many young men coming to California, with flying colors and fresh diplomas, who ignominiously failed to secure a certificate to teach even the lowest grade country school, on an examination in arithmetic, grammar, geography,

history, reading, and spelling, so elementary in its character that, to a pupil of average attainment in the second grade class of an ordinary grammar school, it would have been mere play. They not only showed no "fitness to teach," but they exhibited a most lamentable ignorance of the very elements required to be taught in every common school. They might have been brilliant in the dead languages, but they misspelled their mother tongue; they murdered English, and they could'nt cypher. There can be no safe and sure test, except actual examination.

I do not deny that the hobby of written examinations may be ridden to death. It has been wickedly said by somebody—doubtless some luckless examinee—that the leading object of many examinations is to give the examiners a chance to show off their own attainments.

I have seen many sets of questions that seemed to be fossil curiosties picked up during a life-long search after abnormal things; "tough sums" in arithmetic and algebra, the product of some mathematician run to seed; gleanings of the tag ends of the countless rules, and notes, and exceptions, and annotations, and explanations, and illustrations, and idioms, of Lindley Murray—that great grammarian who wrote bad English and made sad the hearts of innumbered generations of school boys and school girls; twisted and elliptical sentences to parse, according to Smith, or Brown, or Green, or Wells, or Weld, or Sanborn, or Kerl, or Hart, or Clark, or Quackenbos, or Bullion, or Pinneo, or Nokes, or Stokes, or Niles, or Stiles, or Thompson, or Pickwick; unheard-of words of crooked orthography, the gnarled growth of centuries of changes in the English tongue, strung together like onions, in a way that would have brought tears to the eyes of old Webster himself, that dear old philological bush-ranger, who fought orthography on his own hook, in defiance of all usage and of all laws of linguistic warfare; questions in geography, on zigzag boudaries, on the length of all rivers of all the world, from the Amazon down to the trout brooks that we fished in when boys; on the distance from the classic towns of "You Bet" and "Red Dog," in California, to Nijni Novogorod and the sources of the Nile; on the direction of Brandy Gulch and Whisky Canon from Ujiji or Fow-Chow; questions in history, requiring the year and the day of the month of the

settlement of every State in the Union, supplemented by senseless interrogations on historical myths known only in our school text-books; impracticable questions on theory and practice of teaching, about what ought to be done under impossible conditions; questions about elements of penmanship that even such accomplished penmen as Greeley, or Choate, or Napoleon Bonaparte could'nt answer; questions on Sanskrit roots, that no Brahmin ever heard of; questions on the Constitution that would have floored the Great Expounder; questions on physiology that would "stick" Hurley or Tyndal; questions that showed the examiners to be stick stark staring mad; questions so ridiculous that no sane man could answer them. But a practical system of examinations presupposes a common-sense style of conducting examinations.

In conclusion, I submit the following propositions for the consideration of teachers, and educators, and legislators:

First—A comprehensive system of State, city, county, and town boards of examination.

Second—Boards of examination to be made up of State, city, county, or town Superintendents, together with a limited number of professional teachers, appointed in the manner best suited to the school systems of the different States.

Third—A graded series of teachers' certificates, from life diplomas down to temporary certificates valid for one year, granted on actual examination only.

Fourth—Examinations to be conducted in writing, and the percentages allowed in each study to be indorsed on the certificate.

Fifth—A legal recognition, by each State, of the professional certificates issued in other States.

Sixth—A provision for the legal recognition, by boards of examination in each State, of the normal school diplomas issued by the normal schools of other States and of other countries.

Seventh—A determined and combined effort to shape legislation so as to secure longer terms of office to State, city, county, and town Superintendents, to members of boards of education, and to school trustees, thereby securing some degree of uniform progress in educational management.

Eighth—A war of independence to be waged against the out-

rageous system of the annual election of teachers—a plan which reduces teachers below the level of the smallest holder of the smallest post office in the gift of a victorious political party.

Mr. Swett closed with the following extemporaneous remarks, reported as follows:

In closing, I cannot forbear expressing my delight at meeting so many veterans in the cause of public school education; men whose honored names have been familiar to me during so many years of picket duty on the verge of the Pacific. On the long journey across the continent the material prosperity of the country so overwhelmed me that an educational convention seemed of little consequnce, compared with the mighty physical energies of the country, seen in the long lines of railroads, the great cities, and the productive farms of the Valley of the Mississippi; but now, when from this quiet school room, I reverse the glass and look back across our country so vast in extent and so rich in material prosperity; and when I consider that educated minds have transformed the whole land from the primitive wilderness into the beautiful homes of a happy people; when I think of the unseen power that moves this mighty mass of matter; when I remember that the steam engine, which whirled me three thousand miles in a week's time, was once only a dim notion in the mind of a thinker; that the telegraph wires—those nerves of the whole land, that radiate from the brain-centers of civilization, culture, art, and science—were created by the cultivated mind of a thinking inventor, I realize that there is an unseen power mightier than steam or electricity, and that the public schools are the great batteries that evolve this controlling force in civilization.

I magnify the importance of this convention. You who have not lived for twenty years away from the homes where you were born, cannot realize how deeply the wondrous beauty of the New England Summer time impresses a wanderer returned from the Pacific coast, where everything is a contrast to the face of nature on the Atlantic slope.

On the other side, I felt a thoroughbred Californian: but now,

among the scenes of my early days, I begin to feel like a full-blooded Yankee.

Every tree, every flower, every leaf, every dewdrop starts to life some long buried memory; the green grass, the changing cloud-pictures, the rich foliage, sunrise, and sunset flood my heart with tender recollections until I feel like throwing myself down in the shade of a great tree and crying like a school boy.

There is a minor key of sadness, like the sighing of the wind in the grand old pine forests of my native hills. The boys I played with are scattered and gone, and I am a stranger in the house of my boyhood. Some are sleeping in the village churchyard; the graves of some are in the gold canons of California; beautiful faces, once dear to me, have vanished forever, so that I often find my eyes filling with tears, until, in the fullness of my heart, there remains only the sweet hope

> "That, in the hereafter, angels may
> Roll the stone from the grave away."

THE NEW PRESIDENT OF THE UNIVERSITY OF CALIFORNIA.

President Gilman was born in Norwich, Conn., in 1831, and in his boyhood removed with his father's family to the City of New York, where he was fitted for college. He graduated at Yale in 1852, and after a year of past graduate study, partly in New Haven and partly in Cambridge, he went to Europe as an attache of the American legation at St. Petersburgh. He spent a winter in study at the University of Berlin, and was afterwards Secretary of the Commissioners to the Paris Exhibition in 1855. His time in traveling was largely devoted to the study of educational and charitable institutions. On his return to New Haven he became interested with others in the establishment and development of the scientific department of Yale College, which has now become the Sheffield School of Science. He was librarian of the college from 1856 to 1865, and Professor of Physical Geography and History in the Sheffield School

from 1863 to 1872. For several years he was also Superintendent of the City Schools of New Haven, and subsequently State Superintendent of Instruction in Connecticut. He has written for the *North American Review*, the *New Englander*, the *Journal of Science*, and other periodicals, and has printed several public addresses, but has published no volume.

In addition to his other duties Professor Gilman held the office of Secretary of the Sheffield School of Science, a position attended with much labor, but at the same time giving one rare opportunities for becoming familiar with the working and wants of such an institution. He comes among us young in years, but ripe in scholarly attainments, and especially familiar with what is useful in building up a great institution of learning, such as we are now endeavoring to make the State University at Oakland. We have no doubt but his inauguration to the Presidency of that institution will prove an important era in its history. We bespeak for him a hearty welcome, and earnest support from all who are interested in the great cause of education.

[*Extract from President Gilman's Inaugural Discourse, delivered at Oakland, November 7th*, 1872.]

"One of the topics to be considered is the relative importance of different branches and what studies most deserve encouragement. Shall literature and language, the traditional classical course of our colleges be made first in rank? or shall the place it has held be given up to science in its theoretical and practical aspects? are the modern languages to be chosen rather than the ancient? shall history and political science, with the study of the Roman law, or the theory of the State be preferred; or shall mathematics be the dominant theme? is the acquisition of knowledge, or the acquisition of discipline, as it is called, to be the end of instruction? shall general studies which may be presumed to have an equal value in all the varied callings of life, or special studies which have a decided reference to a professional or technical career be recommended to the youthful student? shall lectures, or shall recitations or shall literary and scientific research be the method of education? shall university freedom of choice and of work be permitted, or shall

collegiate restrictions and control be insisted on? These and a score of kindred questions are now under discussion in the various colleges of this country.

A part of the difficulty arises from confusing the requirements of young scholars, like those who have just left the high school and the academy, and those of more advanced students whose tastes, talents, and wants are specialized. Give the former, prescription ; give the latter, freedom ; but let prescription vary with the varying peculiarities of individuals ; and let the freedom allowed be the freedom that is governed and protected by law. College work for college boys implies daily guidance under prescribed rules ; professional work implies voluntary, self-impelled enthusiasm in the acquisition of knowledge.

Another difficulty arises from the rapid extension of human science. It would be impossible for any one, were he gifted as Leibnitz, or long-lived as Humboldt, to master the details of modern researches. The average scholar, having neither the genius of the one nor the life assurance of the other, must be content to fill a much more restricted field. I take it for granted that in the State of California there is occasion to make a plea for the study of modern science. The need of civil, mining, and mechanical engineers, of expert geologists and mineralogists, of devoted naturalists and physicists, of chemists and metallurgists, of geologists, topographers and map makers, of agriculturalists, mechanics and manufacturers and merchants, well trained for their various callings is now so obvious, that I need not advocate the importance of science in education. Its place is acknowledged. The question is how to secure the best sort of instruction, the fullest sequence and relation of studies, the most eminent teachers, the most complete laboratories, and the best apparatus ; and likewise how to encourage that special proficiency which is indispensable to success in modern scientific professions with that literary culture which makes a scholar and befits a gentleman. Health, wealth, popular intelligence, and the spread of Christian civilization are so dependent upon the discoveries of science and the application of these discoveries to a thousand useful arts, that a young and still undeveloped State may well afford to be liberal in the encouragement of this class of studies. How best to secure this scien-

tific education it would take long to tell, and I postpone the special consideration of this theme for another near occasion.

But while nature and its laws in all their various aspects and applications are thus engrossing, man and all his experience and achievements are likewise of transcendent importance. Above all matter is man; above both matter and man is the "Divinity that shapes our ends, rough hew them as we will." So that the individual or the institution that regards the natural forces of this globe only, without observing likewise the intellectual and spiritual forces which are also at work, sees only half the world.

I recognize in the fullest degree the need there is of science. Give us more of it and not less. Encourage the most thorough and profound search for the truth which is to be found in the rocks, the sea, the soil, the air, the sun, and stars; in light and heat, and magnetic forces, in plants and animals, in the human frame, in physical ethnology and in archæology; but let us also learn the lessons which are embodied in language and literature, in laws and institutions, in doctrines and opinions, in historical progress and international relations. Let language, history and literature, oratory, poetry and art still form a chief part of liberal culture, while mathematical, physical, and natural sciences be admitted to the rank from which they have long been excluded.

When the time shall come to discuss in detail the possible changes in the university courses, when an enlarged faculty and increasing funds shall enable the authorities to provide a more generous and varied culture, we shall find the experience of other institutions in a high degree suggestive.

At West Point we see the excellence of superior mathematical training, a well devised course of text-books, rare qualities in the chief mathematical instructor and in his associates, power to prescribe exactly what the course shall be, life-long honors dependent upon success; hence comes the renown of that school of engineers from which Bache and Humphreys and Trowbridge have been sent forth. The scholar's choice is Hobson's.

At Harvard, in the undergraduate department, liberal provision is made for instruction in ancient and modern languages, in chemistry, mining, physics, mathematics, in history, metaphysics and ethics, in botany, mineralogy, and natural his-

tory. The choice in all this variety of studies is given to the scholar soon after his entrance.

At New Haven, the traditional college course has been maintained with a cordial recognition of the modern languages and of history; and side by side with this classical college, the Sheffield School of Science has grown up, where scientific studies predominate. The scholar chooses when he enters between the scientific and the classical course; the latter allows but little further freedom of election; in the Sheffield School there is again a choice between seven different courses.

At Cornell University there is the Harvard freedom of choice with easier conditions of admission to all lines of study but the classical, with manifold modern appliances and helps for the pursuit of technical and scientific studies, and with a generous recognition of history and humanity fostered by the studies of President and of the illustrious Oxford graduate, who has there made his home.

At Princeton, since the accession of the able Scotch metaphysician who guides its affairs, required studies, mathematical and linguistic as of old, engage the student in his first two years; in the last two years of his residence he selects one of several prescribed specialities.

Besides these universities and colleges we must also inquire what the independent schools of agriculture and technology are doing, as in Boston and Amherst, Hoboken and Troy, Urbana and Lansing. English and German experience will likewise be of value. Everywhere the problem is one, but the solutions are manifold, for the conditions are complex and vaguely determined.

With all the experience of other places before us, it is my belief that one of the first wants of California is a distinct, complete, and well organized school of science and technology, such as your organic laws contemplate, in which men of eminence shall have the means and leisure to make researches in all the departments of investigation, to whom young men shall resort for training in the studies which are closely related to the development of mines, agriculture, manufactures, and means of transportation, and from whom the public at large, by the press, by the lecture, and by informal consultation, may be instructed

in the characteristics of this remarkable country and the mode in which its resources can be made most serviceable to mankind. My chief anxiety is whether the people of this coast are yet ready to pay for the luxury and the advantage of so serviceable an institution. It will require a great many teachers, costly laboratories, large funds—more I fear than the University with all the claims upon its treasury is yet able to command. Perhaps some individual whose experience has brought him the value of such knowledge, and who has an honorable ambition to have a name among the benefactors of the State, will supplement the resources of the University with a generous private gift, like those which have done so much for the culture of Eastern youth and the improvement of the Atlantic States."

NATURAL SCIENCES AND INDUSTRIAL EDUCATION.

THE INFLUENCE OF VEGETABLE PERFUMES.—An Italian professor has made researches which lead him to assert that vegetable perfumes exercise a healthful influence on the atmosphere, converting its oxygen into ozone, and thus increasing its oxidizing influence. The essences that develop the largest quantity of ozone are those of cherry, laurel, cloves, lavender, mint, juniper, lemons, fennel, and bergamot; those that give it in less quantity are anise, nutmeg, cajeput, and thyme. The flowers of the narcissus, hyacinth, mignonette, heliotrope, and lily of the valley, develop ozone in closed vessels. Flowers destitute of perfume do not develop it; and those which have but slight perfume develop it only in small quantities. As a corollary from these facts, the professor recommends the use of flowers in marshy districts and in places infested with animal emanations, as the powerful oxodizing influence of ozone may destroy them. The inhabitants of such regions should surround their houses with beds of the most odorous flowers.

CALIFORNIA ACADEMY OF SCIENCE.—Prof. Davidson, on behalf of the Alaska Commercial Company, presented a tusk and lower jaw of the *Elephas primogenius*, brought from Elephant Point,

Escholtz Bay, Kotzebue Sound. The Professor stated that the Company refused $150 for the tusk. These fossils are found at the base of a high cliff, where a large deposit was discoved in 1824, by the British ship *Herald*. The Company was informed of the existence of two complete skeletons of the elephant on one of the Alentian Islands, and the Professor hoped to secure one of them for the Academy. Prof. Dall, of the United Coast Survey, stated that the remains of the mastodon abounded along the northern shores of Siberia and of this continent, and are usually found on the surface. These bones, which are exposed during the summer months, are not well preserved, the tusks and teeth being generally the only parts preserved, and even these are so far affected as to destroy their value commercially. Kotzebue, who first discovered this deposit, says that they were found at the foot of a cliff of solid ice which was covered with a layer of soil. Subsequent examinations confirmed this fact. Since Kotzebue's visit a portion of this cliff has disappeared and the depth of the bay reduced, which led Professor Dall to think that the whole coast of Alaska is gradually rising, and landmarks noted then were no more ancient in their emergence than the elephant remains. Dr. Kellogg exhibited specimens of the wild hollyhoek abounding in the tule lands, which has a similar fibre to the ramie plant. Dr. Kellogg considered it fully as useful as that plant for manufacturing purposes. J. P. Dameron presented a specimen of the *Chinara Collici*, a fish seldom found in these waters. When Professor Agassiz gazed upon this finny variety he is said to have "smiled a pleasant smile."

FLOWERS AND CHILDREN.—In an article in the May number of *Art*, on the influence of toys in educating and forming the tastes of children, Blanchard Jerrold writes charmingly on the subject of flowers. He says: I would have flowers crowded in the schoolroom windows of the very young. I would build broad open balconies for the baby scholars, where, during every daylight moment of fair weather they might have fresh air and bits of beauty flowering under their inquiring eyes. I would have the Pouponniere of Brussels copied, making elementary education—not when a child has been already erected into a

little monster by bad parents and evil surroundings, but in its protracted cradle, in the first shaking of its rattle, and the first pointing of its fingers to pictures and plants. We should—or our children would—see the good results of such cradle teaching, of æsthetics thrown into the alphabet, into the toy-shop, the play-ground, and the adornments of the school room; for the child that is alive to the simplest lessons and beauties of the field, that can delight in striving to imitate—if only with straw or paper—a beautiful form placed before it, is farther on the way to a higher education, even should subsequent events prove untoward in its path, than the creature of dull, unformed sight in fancy, who may be kept well at school under good masters. A feeling for the beautiful, a delight in it, which is at present almost unknown in England, is that which we must strive after—not in art academies, but in infant schools and nurseries. The roughest Dutch doll is a Venus di Medici to the child that nurses it We give the ugly thing to the child, and so make for ourselves the after difficulty of proving that dolly is ugly. The remark applies to nearly all toys—certainly to all that are English.

TREES AND RAIN.—A correspondent writes thus to the *Bulletin of the Torrey Botanical Club*: "The influence of trees upon rain and the general moisture of the atmosphere, which has been much discussed of late, receives a strong illustration from the island of Santa Cruz, West Indies. A friend who spent the months of February, March, and April last upon this island, informs me that when he was there twenty years ago the island was a garden of freshness, beauty, and fertility. Woods covered the hills, trees were everywhere abundant, and rains were profuse and frequent. The memory of its loveliness called him there at the beginning of the present year, when, to his astonishment, he found about one third of the island, which is about twenty-five miles long, an utter desert. The forests and trees generally had been cut away, rainfalls had ceased, and a process of desiccation, beginning at one end of the land, had advanced gradually and irresistibly upon the island, until for seven miles it is dried and desolate as the seashore. Houses and beautiful plantations have been abandoned, and the people watch the ad-

vance of desolation, unable to arrest it, but knowing almost to a certainty the time when their own habitations, their gardens, and fresh fields will become a part of the waste. The whole island seems doomed to become a desert. The inhabitants believe, and my friend confirms their opinion, that this sad result is due to the destruction of the trees upon the island some years ago."

THE COLOR OF THE HAIR.—The significance of the color of the hair is often peculiar. By those who claim to have studied the subject, it is stated that the dark haired races are physically the strongest, but less endowed intellectually than the fair haired. The first are more inclined to manual labor and active exercise, and the last to mental exertion. Black hair indicates strength and a predominance of the bilious temperament, as in the Spaniards, Mexicans, the Indian, and the Negro. Red hair is a sign of ardor, passion, intensity of feeling, and purity of character, and goes with the sanguine temperament, as in the Scotch, Irish, the Swede, and the Dane. Auburn hair is found most frequently in connection with the lymphatic temperament, and indicates delicacy and refinement of tastes, and, if the mind be cultivated, fine moral and intellectual powers. It is common amongst the Germans and Anglo Saxons. Dark-brown hair is, perhaps, all things considered, the most desirable color, as it combines the strength of the black with the exquisite susceptibilities of the light hair.

A GOOD illustration of how slight causes, when constantly operating, may in time eventuate in important changes, is found in what is now taking place on our Arctic shores. According to the New Bedford *Mercury*, probably not less than fifty thousand walruses, with their young, were last year killed or destroyed by our Arctic whalemen. Since the whale has been driven north, the walrus has become the main reliance of the natives for their food, clothing, boots, and dwellings; as he has also become to others as the chief object of commercial attention. At the present rate he must soon be exterminated, or, like the whale, driven out of reach. The question now is, shall our whalemen keep on taking the walrus, and eventually starve and depopulate these Arctic shores?

Six splendid zebras, valued at six hundred dollars apiece, have just arrived at the Jardin d'Acclimation, in Paris, as a present from the new Emperor of Abyssina. It is a prevalent idea that the zebra is untamable, but M. Jeoffroy Saint Hilaire, who has already made sundry experiments in contradiction of this opinion, has determined to prove its fallacy by taking a drive down the Champs Elysees some time during this month, in a coach drawn by six Abyssinian zebras.

M. ZEIGLER, member of the Paris Academy of Sciences, has observed in the leaves of the *drosera* a phenomenon which, if proved to exist, is extremely curious. The scilia on the edges of the leaves of this plant, on being touched by an insect or other living animal, bend toward it, leaving where they touch a minhte drop of gummy liquid, which is continually exuding at their roots. According to M. Zeigler, inert substances do not possess this property of causing flexure of the cilia ; but certain substances of animal origin, for instance, albumen, may acquire the property by simple contact with a living amimal. Vegetable grains are affected in the same way. These substances appear to take from the animal something which renders them capable of affecting the scilia of the *drosera*. If this is the case, then an animal in constant contact with matter capable of thus subtracting from it must be in a condition less favorable to nutrition, other things being equal, than he would be were he not so placed. And this M. Zeigler appears to have proved by experiment. Preparing some light wooden cages, each of which was just wide enough to receive a single rabbit, with its hairs touching the two sides, he flanked a part of these with packages of dried albumen, leaving an equal number without any such contact. A rabbit was placed in each, and all were fed alike. Very soon those exposed to the influence of the albumen began to droop, and before the end of the experiment showed positive signs of disease, while the others remained well, and had considrably increased in weight.

DEPARTMENT OF PUBLIC INSTRUCTION.

All Examination Papers which are to be submitted to the State Board of Examination must be sent either by Wells, Fargo & Co's Express, at the sender's cost, or by mail, *full letter postage prepaid*. Any set of papers insufficiently prepaid will not be taken out of the post office. It has cost us, every quarter, from five to ten dollars to pay for insufficient postage on examination papers. Double rates are charged if part of the postage must be collected at the office of delivery.

Some County Superintendents, when submitting to the State Board of Examination the papers of an applicant for a State certificate, send incomplete papers, or omit the credits allowed in the oral exercises. The applicant, without his fault, loses many credits, and frequently fails to obtain a well deserved State certificate. The State Board is not to blame in this matter. Each quarter a circular is sent, giving a synopsis of the rules of the State Board, as far as they refer to an application for a State certificate upon a county examination. Then, in the "Instruction to County Boards of Examination," are recapitulated the studies in which applicants must be examined.

For the December Quarterly Examination the State Board has prepared no paper on Reading. County Boards will please frame their own questions and exercises in this study.

We have heard of two instances in which a school district voted to "levy a tax of seventy cents on each hundred dollars of taxable property, for a term of years until a sum is raised sufficient to build a schoolhouse." There was no trouble to collect the seventy cents on each hundred dollars the first year; but when, in accordance with the proposition voted upon, it was attempted to collect the seventy cents the second year, some taxpayers contended that the tax could not be collected without another vote of the district, according to the provisions of section ninety-one of the School Law. Even granting, for argument's sake, the legality of voting a tax to be collected for a term of years, the very fact that a one year's maximum tax is not sufficient to raise the sum needed for building purposes shows that more than seventy cents on each hundred dollars must be voted and *is* voted. For if it is voted to collect seventy cents this year and another seventy cents next year, an actual tax of one dollar and forty cents is levied, and not a tax of seventy cents, the maximum rate allowed by law. The provisions of section ninety-two offer some further reasons, if they were needed, why it is illegal to levy a tax which is to be collected in a number of yearly installments.

It frequently happens that a teacher who is not the holder of a legal certificate, makes an agreement with a board of trustees to teach their public school, and to demand his salary only in case he succeeds in obtaining a certificate before the close or immediately after the close of his term of teaching. Section sixty-three of the School Law provides that no teacher shall be entitled to draw for salary any school moneys unless the holder of a legal State, city or county teacher's certificate, in full force and effect. In other words, a teacher can draw for salary any public school money only for the time he taught while the holder of a legal certificate. If a teacher wishes to draw his salary for the whole term he taught a school, he must hold a certificate dated previous to the opening of the school. If at the opening of the school he does not hold a certificate, he can draw salary only from the day when he obtains such certificate. If, as it has happened, a teacher should obtain a certificate only at the close of a

term of teaching, said teacher cannot demand for such term's teaching any public school moneys.

ONE of the most curious questions ever submitted to us is the following: In accordance with the provisions of section twenty-nine of the School Law, a new district is formed. The County Superintendent *immediately* appoints trustees to hold office until the district can hold a school meeting for the election of trustees. Such school meeting is duly held; but for some reason or other the elected trustees refuse to qualify. Thereupon the County Superintendent declares that the new district has thereby lost its organization, and that the action of the supervisors making a new district is void. The district demurs to this and appeals to us. From section thirty of the School Law it is plain that the action of the supervisors making a new district shall be void *only* when the new district fails to open a public school within four months from the action of the supervisors. If the electing of trustees were one of the requisites to the organization of a new district, the Law would have specified it. The County Superintendent above referred to, evidently does not understand the working of the law in this matter. According to his opinion there could be no such thing as a new district acting under trustees appointed by the County Superintendent. Yet, section nineteen and thirty-seven speak of trustees appointed for new districts. The County Superintendent erred in appointing trustees before the lapse of thirty days after the district was formed by ordinance of the board of supervisors. The thirty days spoken of in section thirty-eight are granted for the purpose of enabling a new district to choose its own trustees. It is only when after the lapse of thirty days the district has neglected to elect trustees, or the elected trustees have failed to qualify, that the County Superintendent can and *must* appoint trustees, in accordance with section nineteen.

A TRUSTEE asks us whether copy-books are stationery within the meaning of section forty-eight. The Attorney General decides *no*.

CORRECTION.

OAKLAND, November 12th, 1872.

Editors California Teacher: Some one has misinformed you as to the matter noticed in the following paragraph of the November TEACHER: "Students are now admitted into the College of Letters on an examination in Latin, without Greek. They begin Greek in the University." The facts are as follows: No change has been made in the curriculum of the College of Letters. The Greek course is continued as heretofore, and applicants for admission to the College of Letters will be asked to pass the usual examination in Greek. But for this year, as an experiment, there is an *additional* class in Greek for those whose preparation was insufficient. The members of that class have the opportunity of going rapidly over the preparatory Greek, and of presenting themselves for admission to next year's Greek class. By falling behind a year and continuing behind in that study, they will be able at the end of their four years to pass all their Greek examinations and take their degree in the College of Letters. No Greek is required in the fourth year of the course. The teachers of schools throughout the State should understand the importance of giving their pupils a thorough preparation in both Latin and Greek, that they may rightly use the advantages of the classical course in the University. K.

IT will be some time in December before we shall be able to furnish the new School Law. This is owing to the delay in issuing the Political Code. As already stated in

the July number of the TEACHER, the new law does not differ materially from the old law. The following are the points of difference which are of immediate importance to school officers: 1. School grounds, when practicable, must be adorned with fruit and ornamental trees and shrubbery. 2. Union Grammar Schools of two or more contiguous districts are abolished. 3. Natural history, vocal music, and industrial drawing are added to the course of studies. 4. Applicants for certificates must be examined in natural history, vocal music, and drawing, in addition to the studies now required by law. 5. The standing of each applicant in each study and in the class must be indorsed on the back of each certificate, otherwise it is not a legal certificate. 6. In cities having graded schools beginners shall be taught for the first two years by teachers who have had at least four years' experience, and such teachers shall rank, in point of salary, with those of first grade. In this connection we call the attention of school officers to an amendment to an Act to establish a State Normal school. In the Act of 1870 it is provided that the certificates and diplomas granted by the Board of Trustees shall entitle the holders to teach in any county in the State for the time and in the grade specified in the certificate or diploma. The whole of this provision was at first retained in the Political Code, section fifteen hundred and three of which stated that "every person holding a certificate or diploma issued by the Board of Trustees of the Normal School may teach in the public schools of this State for the time and in the grade prescribed by the certificate or diploma." This section was amended by striking out the words "certificate or" wherever they occur. The section now reads: "Every person holding a diploma issued by the Board of Trustees of the Normal School may teach in the public schools of this State for the time and in the grade prescribed by the diploma." County superintendents, trustees, and teachers holding State Normal School certificates will please bear in mind that after the first day of January, 1873, a State Normal School certificate will no longer entitle the holder to teach a public school.

EDUCATIONAL ITEMS.

LINCOLN SCHOOL.—J. K. Wilson has been elected Principal of the Lincoln School, San Francisco. Mr. Wilson has a high reputation as a successful teacher. He is the right man in the right place.

MR. C. F. KIMBALL, a graduate of Waterville College, has been elected Principal of the Los Angeles Boys' Grammar School. Dr. T. H. Rose, who has held that position for the past five years, is elected Principal of the Los Angeles High School, with the supervision of all the public schools of the city.

TRAINING COLLEGES.—Prussia possesses at this time eighty-eight normal schools, five of which are training colleges for female teachers.

OUR GEOLOGICAL SURVEY.—The great value of the geological survey of California may be seen from the reputation which it is steadily gaining at home and abroad, and the hearty commendation it receives from American and foreign savants. Professor Agassiz paid a high tribute to the survey. President Gilman, of the State University, commented upon the great value of the work and the able and economical manner in which it has been carried on. Sir Roderich Murchison, late President of the Royal

Geographical Society, and Sir Henry Rawlinson, his successor, praised it warmly in some of their annual addresses. The Secretary of the Royal Geographical Society writes that the survey has created the greatest interest in that body, and that at the next meeting Professor Whitney will be elected an Honorary Fellow. Dr. Petermann, the great German geographer, prints in the last number of his journal some paragraphs in relation to the California survey, and speaks of its extraordinary value to all branches of science. He has also named two newly discovered points in Nova Zembla in honor of Hoffman and Whitney. The Geological Society of London has recently elected Professor Whitney a Foreign Correspondent—an honor which is limited to a very small number, and only shared by five other Americans, Dana, Hall, R. E. Rodgers, Leidy, and Lesley. Professor Whitney has resigned his position in Howard University that he may devote his whole time to the new volumes of reports and the additional maps and charts, which are in a forward state of preparation.

ON the 24th of August the American Association for the Advancement of Science passed a resolution with regard to what is known as "the China Indemnity Fund;" the name given to a large sum which China overpaid in settling for damages to United States citizens, and which, when informally tendered to the Chinese Government, was declined, with the intimation that pressure on the subject would be hurtful to Asiatic pride. This fund now amounts to $450,000; and a bill is now pending in Congress which proposes to appropriate this surplus for the education of Americans and Chinese "in the languages, literature, and sciences of the respective nations; to facilitate commercial, diplomatic, and scientific intercourse between the two peoples; and for the increase and diffusion of knowledge among men." It is apparently intended to accomplish this purpose by establishing an American college in China; and the resolution of the Association "heartily indorses the purpose of the aforesaid bill."

SCHOOL FOR PRINTERS.—Schools for printers are in existence in all parts of Germany. Apprentices and artisans attend them largely, and are taught the theory and practice of printing and kindred arts, as well as a general knowledge of foreign languages, and an accurate knowledge of the types of all languages they are likely to meet with in their calling. One of the largest and best organised is in Stuttgart.

SCHOOL FOR BOOKSELLERS.—There has been a booksellers' school at Leipsic for some time, but it does not yet meet the requirements of the students and there is soon to be a higher division organized. The course of instruction in the new department will be divided into three classes, and will demand three years' study; it is to embrace the literary as well as the practical side of the business, that the young man may be thoroughly fitted for the varied duties and interests of his calling. It is interesting to note the course of study, which comprises ancient and modern languages, the science of commerce, mathematics, geography, history, natural sciences, drawing, writing, bibliography, booksellers' technical information, business management, statistics, history of the present time, history of the book trade, æsthetics, elocution, debate, together with a study of the types and written characters of all languages. This new and brilliant enterprise has just begun its first term. It has been suggested that instruction should be added in the theory of the art of printing. Printers who have occasion to work for booksellers often express themselves astonished at the great ignorance their employers show of the simplest details of typogra-

phy, which in many cases leads to serious misunderstandings, and almost always causes great expense and waste of time.

CLIMATE OF LOS ANGELES IN NOVEMBER.—Two orange trees in full blossom, and at the same time literally covered with fragrant white flowers, may be found in the Wolfskill orchard.

SALARY LIST OF THE CITY AND COUNTY OF SAN FRANCISCO, ADOPTED NOVEMBER 19TH, 1872.—Principal of Boys' High School, $250 per month, $3,000 per annum. Assistants of Boys' High School, $150 per month, $1,800 per annum. Principal of Girls' High School, $208 33 per month, $2,500 per annum. Assistants, $150 per month, $1,800 per annum. Principal of Model School, $125 per month, $1,500 per annum. Principals of Grammar Schools, $175 per month, $2,100 per annum. Vice Principals of Grammar Schools, $125 per month, $1,500 per annum. Head Assistants of Grammar Schools, $100 per month, $1,200 per annum. Assistants teaching first grades boys, $92 50 per month, $1,110 per annum. Assistants teaching first grades girls, $85 per month, $1,020 per annum. Assistants teaching second grades boys, $83 33 per month, $1,000 per annum. Assistants teaching second grades girls, $75 per month, $900 per annum. Assistants teaching third grades boys, $75 per month, $900 per annum. Assistants teaching third grades girls, $72 50 per month, $870 per annum. Assistants teaching fourth grades boys, $72 50 per month, $870 per annum. Assistants teaching fourth grades girls, $70 per month, $840 per annum. Assistants teaching French and German (Goepp and Itsell), each $125 per month, $1,500 per annum. Assistants teaching French and German (Loudon, Carr, and Solomon), each $100 per month, $1,200 per annum. Principal of South San Francisco School, $150 per month, $1,800 per annum. Principal of Potrero School, $115 per month, $1,380 per annum. Principals of Primary Schools of sixteen classes or more, $150 per month, $1,800 per annum; fourteen classes or more, $145 per month, $1,740 per annum; twelve classes or more, $135 per month, $1,620 per annum; ten classes or more, $125 per month, $1,500 per annum; eight classes or more, $115 per month, $1,380 per annum; six classes or more, $105 per month, $1,260 per annum; four classes or more, $95 per month, $1,140 per annum; two classes or more, $85 per month, $1,060 per annum. Principal Ocean House School, $100 per month, $1,200 per annum; of Point Lobos School, $100 per month, $1,200 per annum; of West End School, $100 per month, $1,200 per annum; of Colored School, $100 per month, $1,200 per annum; Laguna Honda School, $100 per month, $1,200 per annum. Assistants Primary Schools, $67 50 per month, $810 per annum. Probationary teachers, first grade, $55 per month, $660 per annum; probationary teachers, second grade, $50 per month, $600 per annum. Teachers of music and drawing, $150 per month, $1,800 per annum. Principals Evening Schools, $60 per month, $720 per annum; assistants of Evening Schools, $50 per month, $600 per annum. Teachers of reform classes, $115 per month, $1,380 per annum. Office boy, $40 per month, $480 per annum. Truant officer, $100 per month, $1,200 per annum.

A NEW HAVEN paper, of a late date, contains the following account of a visit of the Japanese Minister to the schools of that city:

"Mr. Mori, minister from the Japanese Empire to this country, paid a visit yesterday under escort and by invitation of Secretary Northrop, to the Dwight School, the Skinner School, and the High School. The minister was highly pleased with what he saw and heard relative to our schools, and with our beautiful city. At the High

School he was entertained by the combined force of pupils in the assembly room in singing, led by Prof. Jepson. A new musical exercise upon the blackboard, written for the occasion by Mr. Jepson before school began, and which none of the pupils had ever seen before, was at at a proper time placed before their eyes, and the school readily sung it from sight. It was quite a difficult composition. The pupils sang various selections from the tune-book, including Home! Sweet Home! and other well-known airs. The singing exercises concluded, Mr. Parish, Superintendent of the schools, introduced Mr. Mori, who, in very fair English, briefly expressed delight at the musical exhibition given him, and said he thanked the school very much for it. The school was then dismissed, the visitors remaining to witness the method of dismissal, which is very systematic, the various component parts marching out in turn and to music upon the piano. One of the scholars operated at the instrument for the purpose quite effectively. The singing done by the school was accompanied with piano music by Prof. Jepson. Upon the platform with Mr. Mori, were Secretary Northrop and four Japanese children, two boys and two girls, also Mr. Sperry, President of the Board of Education, and other gentlemen. The two Japanese boys were under the care of Mr. Northrop, of West Haven, with whom they reside. The two girls have just arrived in New Haven, and are domiciled at Rev. Dr. Bacon's, where they are to reside. There were also quite a number of gentlemen and lady visitors seated in the High School room near the stage. The Japanese minister stopped yesterday at the New Haven House. He spent the evening with Professor Northrop very pleasantly, and was introduced to some of the literati of the city. To-day he goes to Hartford to pay a visit to the High School there, the Deaf and Dumb Asylum, and perhaps other institutions! He is a modest, unassuming gentleman, has a sharp, keen eye, was attired in black, wears a tile and held it in his hand when addressing the High School.

BOOK NOTICES.

INTRODUCTION TO ANALYSIS AND PARSING. By G. E. Lighthall. 18 mo., 62 p., 25 cents: A. Waldteufel, Publisher, San Jose.

The author begins the study of grammar with the simple sentence, and carefully avoids definitions. This is the right way, in fact, the only way. For the sentence is the unit of thought, and should, therefore, be the starting point of grammatical instruction. By doing so, our children will encounter no difficulties in recognizing the proper functions of the different words used in the sentence. The English, being almost entirely free from inflections, imperatively demands such a course. No external signs, but simply its use, determine the kind of word.

The author might have reduced its contents still more, and yet it would have answered all purposes of good instruction. He states that it has been submitted to the class-room, and found to answer all expectations. School books should grow in the school-room, and should not be compiled in the elegant study of men who are anything but teachers, but who have the pardonable desire of making money. We hope that in a second edition the author will free the little work from certain crudities. Teachers, who desire to pursue a rational method in teaching grammar, will do well to examine this little book.

SOMETHING NEW.—L. Prang & Co., of Boston, will shortly bring out a series of small chromo cards on Natural History. They are designed by N. A. Calkins, Assistant Superintendent of Schools of the City of New York. They include sets of twelve cards each, on all kinds of leaves, roots, and plants. They are by far the most beautiful card-paintings ever published for school use. Through the kindness of Messrs. Prang & Co. and of Mr. Calkins, we were furnished with some advance sets, which we are not yet tired of admiring. When announced for sale, we shall notice in full.

WILL BE PUBLISHED.—The Proceedings of the National Educational Association, held at Boston last August, will be published in book form during the month of December. To accommodate teachers who may desire copies, Payot, Upham & Co. have ordered fifty copies, which will be sold at one dollar a copy. Orders received in advance.

WEBB'S FIRST LESSONS IN LANGUAGE AND DRAWING. Designed to teach at home and at school, How to Talk, How to Read, How to Draw on the Object Lesson Plan. By J. Russell Webb: For sale by Libby & Swett, Publishers and Booksellers, San Francisco.

A little book of 120 pages, of more than common interest—a phenomenon in our educational literature. We strongly recommend it to all primary teachers who desire to make their instruction interesting, and free themselves from that mechanism which destroys the mind and body of the pupils as well as of the teachers. A careful study of the first twenty pages will amply reward and infuse new life into elementary teaching, generally considered burdensome, and even destructive to health.

Yet, excellent as the little book is, it is not free from defects. We sincerely hope that some philanthropic teacher will write a book in which the Word-method, or rather the Writing-reading-method is carried out to its full extent and logical sequence. "The education of the child must accord, both in mode and arrangement, with the education of mankind, as considered *historically;* or, in other words, the genesis of knowledge in the individual must follow the same course as the genesis of knowledge in the race." This great truth forms the basis of all rational methods, and its violation will always prove a defect. The author violated this principle by introducing reading before writing. The phonetic mode of writing prevailed originally in the Sanscrit, Arabic, Phœnician languages, and the inventor of the phonetic mode must have passed necessarily three stages of development: 1st. He resolved words into their elementary sounds; he analyzed. 2d. He invented signs to represent these elementary sounds; he wrote. 3d. He uttered these elementary sounds thus represented by signs; he read. In accordance with the above deductions we should observe, in teaching reading, the following course:

1. Things, before talking (sense, perception).
2. Talking, before writing (expression, language).
3. Writing, before reading (representation).

The method pursued in this little book is by no means new. It was already advocated, in the year 1618, by Ratchins, a teacher in Holstein; and again, in 1719, by P. de Launey, in his work "Méthode et Art d'apprendre á lire le Francais et le Latin."

THE BRYANT & STRATTON BUSINESS ARITHMETIC. A new work, with practical problems and valuable tables of reference. Designed for business men, commercial, agricultural, and scientific colleges, normal and high schools, academies, and universities. By H. B. Bryant, E. E. White, and C. G. Stowell, M. A. New York: Mason, Baker & Pratt. 1872. 564 pp. $2.50.

The object and design of the work is to give a clear understanding of the science

of numbers and the art of commercial and business computations. The book is divided into three parts: The scientific, practical, and tabular. Parts second and third are particularly instructive and extremely useful. Many a subject is treated of which rarely finds its way into an ordinary treatise on Arithmetic. The book should be on the table of every teacher of higher classes, and also in every district library.

(Other books received too late for this issue, will be noticed in our next.)

SCRIBNER'S MONTHLY.

The publishers of this periodical, in their prospectus just issued, promise for the ensuing year a brilliant array of contributors, and an increase in the variety of illustrations. Among the "good things" promised for 1873, we note the following: A serial story by Dr. Holland; a new story by Saxe Holm; a long story from Bret Harte; Clarence Cook On Furniture and Decoration; R. H. Stoddard On Authors.

HISTORY OF ENGLISH LITERATURE. By H. A. Taine. Abridged from the translation of H. Van Laun, and edited with chronological tables, notes, and index, by John Fiske. Holt & Williams, New York.

Taine's well known work on the History of English Literature is so universally appreciated and so generally considered the best work on the subject ever published, that it would seem a waste of time to refer once more to its great merits and excellencies. Teachers will be glad to learn that Messrs. Holt & Williams, of New York, have published an abridgment containing all the essential features of the original work. By this praiseworthy undertaking the publishers have brought the work within the reach of everybody. The very words of the author have been retained in nearly all cases; only here and there, a word, a sentence, a paragraph or two, and sometimes a half dozen pages have been omitted, being not essential to the continuity of the exposition or to its completeness; also quite a considerable part of the curtailment has been effected by the omission of indecent passages and citations, the more elaborate philosophizing, and the chapters on contemporary authors.

LITTEL'S LIVING AGE.

Those of our readers who wish to be furnished with the *cream* of current English literature at small cost, will do well to read the prospectus of LITTEL'S LIVING AGE, to be found among our advertisements.

SCHOOL-DAY VISITOR.

Our young friends read this magazine with increasing pleasure every month. The publishers offer special inducements for new subscribers. See advertisement.

THE OVERLAND MONTHLY for December comes to hand just as we are going to press. Its contents are: Isles of the Amazons, Part IV.; The Northern California Indians, No. VI.; Lost; Asphodel (poetry); Legend of the Montecito Grapevine; Arab Literature and Love Lore; Origin of our Antiquities; Winning the Race—In a Double Sense; Living Glaciers of California; John and Margaret (poetry); Ultrawa, No. III.—Bay Coast; The Building of the University; Etc.; Current Literature; Record of Marriages and Deaths on the Pacific Coast.

A MANUAL OF AMERICAN LITERATURE. A Text-Book for Schools and Colleges. By John S. Hart, LL. D. Philadelphia: Eldredge & Brother, 1873.

A volume of 641 pages of fine print. As a book of reference it will be very serviceable and useful; but we doubt very much that it will ever be used largely as a text-book in literature, for no school will find time to wade through such an extensive mass of material. The author's conception of a text-book on literature is evidently a very broad one. In our opinion, a text-book on literature should contain biographies of the most prominent writers, and extracts of their very best productions, to cultivate the taste of our pupils, which can be more effectually done by the careful reading and study of a few select pieces of classical authors than by mere catalogued facts, void of educational elements. The author deserves great credit for having collected so much material for the future historian on American literature.

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THE

CALIFORNIA TEACHER.

JANUARY, 1873.

VOL. X. SACRAMENTO. No. 7.

[*For the California Teacher.*]

ARITHMETIC.

[*By Franz. Wiedemann, Teacher of Elementary Studies in the Fourth Public School, Dresden. Translated by Mrs. Lane.*]

THE programme of instruction for the public schools of Dresden devotes three hours each week to the study of arithmetic. It is, of course, understood that this time is to be divided into lessons of suitable length.

If there be one branch of the mental training of the schoolroom which, more than any other, requires a *thorough foundation*, this is certainly arithmetic. Without such foundation it is as vain to expect suitable and good progress to be made, as to demand skillful painting from one who cannot draw a straight line. "Slow and sure" should be the motto for this study in our primary classes. Neglect of this principle will revenge itself, if not on the first teacher, most surely on her immediate successors.

Since the young pupils on entering the schoolroom bring with them no clear idea of numbers, a few, at most, being able to count a little mechanically; since the study of the science of numbers is one of the most difficult of mental operations; since it is not every one who has a talent for it and since it is necessary that the first steps should be made very clear and should be most thoroughly learned, we should, therefore, in the lower

classes especially, guard against allowing instruction in this study to cover too much ground.

I speak from experience when I maintain that it is not demanding *too little*, if, with three hours' instruction each week, the pupils learn during the first school year to understand and to perform *correctly* and *rapidly* any and all operations on numbers 1 to 10, of the four rules of arithmetic. If any teacher considers this too low an aim, let him remember that *all* the pupils are to be brought thus far; that they are to learn this *thoroughly*, and that they are to *understand clearly* what they do. To count thus far, forwards and backwards, and to add and subtract a little, is soon learned; but to develop a clear idea of the *meaning* of what they are doing, is something more than teaching a little counting, addition, and subtraction. Not only satisfaction, but rejoicing in the future, awaits such a mental discipline in the child's first school year.

II. MENTAL AND WRITTEN ARITHMETIC.

The next question which arises is, Shall the child be taught *written* arithmetic? I answer, Yes, by all means.

a. The use of a slate is an agreeable change to the child. What he has repeated in thought and speech, he now sees represented in certain forms.

b. Reckoning upon the slate is a kind of recreation for the child. The pupil does not need to think so closely as in mental calculation, where he is required to give undivided attention. Moreover, we need not grudge the teacher's lungs a little respite.

c. There is a special advantage in allowing the child to use the slate, inasmuch as here he learns to walk alone—to reckon for himself.

d. Where the use of the slate has been taught in the lowest class, greater progress can be made in the higher classes where the teacher has only to build on the foundation already laid.

Mental arithmetic must, however, always hold the first place in importance. In every-day life and in the whole school-course, it is the principal thing, and hence it should also be the principal thing in the elementary training.

III. MEANS OF CULTIVATING SENSE-PERCEPTION IN ELEMENTARY ARITHMETIC.

Three things are necessary to thorough and successful instruction in primary classes: (1) Perception by the senses or sense-perception; (2) sense perception and (3) still again sense-perception. Fortunately, means for this are easily supplied.

Firstly, we have stationary numbers on wall-maps or charts; here the numbers, from 1 upwards, are represented by figures, dots, straight lines, or any other marks.

Secondly, movable representations of numbers, as in the common abacus of the schoolroom.

In the former, the number is fixed, in the latter, it must be made; and since the child always has a better idea of what he himself has put together than of what is presented to him as a whole, even if the different parts be pointed out to him, the abacus is therefore to be preferred to the chart or the table of figures.

Some improvements in the abacus are desirable; first, the wires should be movable, so that a larger or smaller number of balls could be ranged beside each other at pleasure; second, the balls, which are generally too small, should be at least two and a half inches in diameter, so as to be easily distinguished at the farthest part of the room; and to further aid the eye, the balls should be alternate white and black.

Every schoolroom should be furnished with both figure-chart and abacus, for even in learning arithmetic variety is pleasing and beneficial, and this is so true that the teacher may increase her resources of illustration (even at her own expense) with great profit. The little boy, whose roving eye betrays that the oft seen balls of the abacus have to-day no charm for him, may readily fix his gaze upon the box of gaily-painted soldiers, that, leaving their ambuscade in your desk, maneuvre the lesson of the day into his listless mind; or the rattling marble in his pocket may give you the key to his attention; with a little consideration of age and sex, such resources may long be made a useful aid to the teacher.

IV. METHOD OF TEACHING ARITHMETIC.

Instead of first teaching to count from 1 to 10, and then to add from 1 to 10, etc. ; I first take the number 2, then the number 3, then 4, and so on, counting as far as each, adding, subtracting, multiplying and adding each, in every way possible without using any figure not yet reached.

In this method there are ten steps for mental reckoning and twelve for slate exercises, thus :

A. Mental exercises (take the number 3, for example):

1. Making the number. (1+1+1.)
2. Counting forwards. (1, 2, 3.)
3. Counting backwards. (3, 2, 1.)
4. Addition. (2+1. 1+2.)
5. Subtraction. (3—1. 3—2. 3—3.)
6. Multiplication. (3×1. 1×3.)
7. Analysis. (3=2+1. 3=1+1+1.)
8. Division. (3÷3. 3÷2.)
9. Comparison. (3 is 1 more than 2; 2 more than 1.)
10. Illustration problems. (Charles had 2 slates and has bought 1 more; how many slates has Charles now?)

B. Slate exercises.

11. Most of the above exercises, with various marks.
(| | + | = | | |. | + | | = | | |.)
12. The same in figures. (2+1=3. 1+2=3.)

It is considerable work to thoroughly go through these exercises on every number from 1 to 10, but it can be completed in the first school-year, and, being done, we may be assured that the pupils will not only have a satisfactory idea of these numbers, but will also have laid a good foundation for their future progress in arithmetic.

V. SHALL FIGURES BE TAUGHT IN THE FIRST SCHOOL-YEAR.

Various authors maintain that *figures* should not be taught in the lowest grade, because the children do not seem capable of comprehending the signification of the figure.

I hold a different opinion. The youngest pupils may be taught the figures, but, of course, only after many and various illustrations and operations on groups of units have given them

a clear idea and comprehension of the value of the corresponding figure. Those who oppose the teaching of figures will admit that there must be an end to straight marks, dots, etc.; that they are hardly available beyond 20. When shall figures be introduced? You may answer after the little learners have become familiar with all the operations from 1 to 10. But, if you are going to teach thoroughly, it will not suffice to say that the figure 8, for instance, represents eight ones or eight units, but you must return to the beginning and repeat your whole course of instruction.

I doubt, moreover, if it be beyond the mental power of children to observe and comprehend that the figure 2 signifies two units (straight marks, dots, etc.,) the figure 6, six units, and the figure 10, ten units. Do we not think them capable of comprehending things much more difficult? Have they not to observe and learn the *sound* which more than fifty different figures (capitals and small letters) signify? Do the letters l, d, z, convey to them the least idea in what position the mouth must be placed, or what sound it must produce? When we show them a cube, are they not to observe how many sides and angles it has? And even when we speak to them of the Highest, whom they cannot see, do we not cause them to create in their souls an image of their Heavenly Father?

I do not, therefore, find that there is any harm in teaching figures to the youngest scholars, provided their minds have been prepared beforehand to understand them. For instance, before being taught the figure 3, let the idea of the number three be well illustrated on the blackboard and with objects, and well digested in their minds.

That I may not be misunderstood, I will remark that I do not intend to say that so soon as the little scholars have learned, for example, the figures from 1 to 6, that they shall henceforth *always* and *only* use figures. Lines, dots, and objects will always remain the material for sense-perception; but the use of figures is combined therewith, and may be offered both as a change and a reward to the pupils.

VI. PRACTICAL ILLUSTRATION OF THIS METHOD.

The Number One. A.—Mental Exercise.

I. *Illustrating the Number One.*—How many stoves are there

in the school-room? There is one stove in the school room. How many teachers are speaking to you now? One teacher is speaking now. How many desks does the teacher have? The teacher has one desk.

How many heads have you. (How many noses, mouths, throats, etc.)

I hold up one finger. How many fingers is that? Each of you hold up one finger. Repeat: That is one finger. (The same with the hand, arm, etc.)

I now hold up other objects—a knife, a pen, a pencil, a book, a watch, etc.

Now on the blackboard I make one straight line, one dot, one ring, one cross, draw hastily one tree, one house, one bird, etc., asking each time how many marks is that, how many dots, houses, etc.

II. *Subtraction.*—I write one straight line. How many lines are there? I erase the line. How many lines were there at first? How many have I erased? How many are left now? (The same with dots, rings, etc.)

If I make just one cross on the blackboard and then erase one cross, what is left? We can also say: one from one leaves nothing. Repeat that after me.

III. *Illustrative Problems.*—Freddy had one slate-pencil in his pocket when he started for school; on his way to school he lost one slate-pencil. How many slate-pencils had he left?

Lizzie's mother gave her one biscuit; a little while afterwards she ate one biscuit. How many biscuits had she left?

Alfred had one little heifer. How many? When the heifer was large enough, his father had it killed. How many heifers did he have killed? How many heifers did Alfred have left?

Emma had one apple in her pocket. How many apples? She met a hungry child and gave him one apple. How many? How many did she have at first? How many did she give away? How many did she have left then?

B.—Slate Exercises.

I. *Illustrating the Number One.*—Make one straight mark one dot, one ring, etc.

II. *Subtraction.*—Make one straight line. Erase it. What remains? (Rings, dots, etc.)

III. *The Figures.*—When grown people reckon, they often use a pencil, or a pen, or a piece of chalk. But grown people do not make straight lines, or dots, or rings, but they make figures. I will show you some figures such as grown people make. (I write from 1 to 10.) See, these are only figures. But every one of these figures has a meaning. What they mean you shall learn pretty soon. But now listen to me:

A large boy wanted to write how many satchels, slates, caps, coats, and picture-books he had. He had only one satchel; and now I will show you a figure that he wrote which meant one. He wrote this: 1. He had only one slate, so he wrote again, 1; etc.

This figure, then, means one thing—one thing only; one horse, one house, one fish; therefore, we name this the figure one. What do we name it? What do we mean by a one? How many does it mean?

Then, instead of one straight line, (dot, etc.,) what can I write? Now, try on your own slates if you can make such a figure one as grown people make.

There must also be some one's in your reading books; see if you can find any.

N. B.—This is as far as you can go with the number one without getting beyond the comprehension of the children.

THE NUMBER TWO.

I. *Composing the Number.*—Show me one hand. How many hands are there? There is one hand. Can you show me one hand more? Repeat: there is one hand more. How many hands are there now? How many hands have you, then? We have two hands. The same exercise with arms, eyes, cheeks, ears, etc.

Edward, come here. (He stands before the class.) How many boys are here? Henry, come here, also. How many boys are here now? The same with fingers, pencils, books, caps, etc.

How many ears has a cat? A cat sometimes catches a little mouse. How many ears does the mouse have?

Next make one straight line on the blackboard. How many lines have I made? Another straight line. How many lines

have I made this last time? You have made *one* line more. How many lines have I made in all? You have made *two* lines. Then how many lines are on the blackboard now? How many lines do you see? The same with dots, rings, etc.

Clap your hands together twice. Rap twice on your seats.

II. *Counting Forwards.*—I place one soldier on the desk, and at a little distance, two soldiers. How many soldiers are here? Two. Repeat; there is one soldier, there are two soldiers.

The same exercise with balls on the abacus, and with other objects.

Blackboard.—I write one dot, and at a little distance, two dots. How many dots are here? One. How many here, two. Now, we will count quickly: one, two. What comes first? One. What next? Two.

We have now counted. What have we done? Because we first said the *smaller* number, one, and then the number that means more than one, two, we say we have counted *forwards*. What do we say? Now, count forwards once more. Again, louder.

III. *Counting Backwards.*—Watch closely what I am going to do. How many balls have I here? Two. How many here? One. How many came first, Two. How many next? One. When we count this way, which number must we take first? Two. Which then? One. So, now we count two, one. Count that way yourselves. This time we have said the *larger* number first, and then the smaller, have we not?

The same with other objects. Repeat this many times, always with new objects.

On the Blackboard.—How many crosses have I made here? Two. How many here? One. Which do we take first, the most crosses, or the fewest? The most. And then? The fewest.

When we count this way, first saying the greater number, and then the smaller, we count *backwards*. What do we do? You may count backwards once.

The same with other marks.

Now let us see if we can count *forwards* again. Give attention to what I write on the blackboard. (| — | | .) Count. Look again. (| | — |) How must you count this? Backwards. Count.

Close your eyes. Keep them shut close together, Charlie. That's right. Now count forwards. Right. Open your eyes. Who will count forwards alone for me? Who will count backwards? Harry will. But Harry must turn his back to the board so that he cannot see the lines. Watch him and see that he does not look at the board. I think Freddy would like to try to do it. Would he not? No? Then all count forwards. Backwards. Who would like to count alone right loud? Who can count louder still?

It would be useless to take up more space with these exercises: enough has been said to give an idea of the manner and the method.

IV. *Addition.*—Hold up one hand. How many hands are there? Hold up one hand more. Repeat: here is one hand more. How many hands are there in all? Repeat: One hand and one hand more are two hands.

The same with other objects; but always let the answers be given in a complete sentence, thus: One finger and one finger more are two fingers. One soldier and one soldier more are two soldiers. One ball and one ball more are two balls.

On the Blackboard.—What have I made on the blackboard now? (One ring.) What have I made again? (One ring more.) How many rings are there in all? One ring and one ring more are two rings. Repeat it after me. One line and one line more are two lines. One dot and one dot more are two dots. One cross and one cross more are two crosses.

But we can say this a shorter way; we can say, one and one are two. What can we say?

V. *Subtraction.* How many fingers am I holding up? Two. How many fingers are there then? Two. Now, watch carefully. (I bend one finger slowly down.) Are there two fingers now? No. How many are there? One. How many fingers have I taken away? One. How many fingers remain then if you take one finger from two fingers? When you take one finger from two fingers, one finger remains.

The same with other subjects.

We can say this a shorter way, also; we can say: one from two leaves one; or: two less one is one.

Two boys. How many boys do you see by me? Two. I

will put one of them behind the door. How many do you see now? One. How many boys less than there were? One. How many were there at first? Two. When there is one boy less there is only one boy; so we can say: two boys less one boy leaves one boy. Repeat that. Or we can say it shorter: two less one is one. How can we say it?

Look at something quite new which I am going to show you.

How many books have I in my hand? Two. I lay them away one at a time. How many books have I in my hand now? Not any. How is that? Because you have just put them away. How many books did I have? Two. And how many have I laid away? Two. And how many books are left? None. Then if I have two books and take two books away, how many books have I left? None.

Boys, pencils, rulers, etc.

We can say this shorter, also: we can say, two from two leaves nothing; or, two less two is nothing.

On the Blackboard.—How many apples have I drawn? Two. How many have I erased? One. How many are still there? One. (Draw trees, stars, etc.) As before: one from two leaves one.

How many straight lines have I made now? Two. How many have I erased? Two. How many are still left? None. (Dots, rings, etc.) As before: two from two leaves nothing.

Review.—How many are left when you take two away from two? How many when you take only one from two? When you take one from one?

VI. ANALYSIS OF THE NUMBER.

How many balls are on this corner of the abacus? Two. The two balls are so close to each other that they look as if they had grown together, do they not? But look, I can separate these into two parts. How many are in this part? One. And how many in the other part? One. If I shove them together we shall have a whole two again. So the number two is made of two parts. Of how many parts is two made? Each part is one ball; therefore I can say, two balls is one ball and one ball more. (Pencils, etc.)

We can say this shorter: we can say, two is one and one more.

Blackboard.—Make two straight lines. How many lines do you see? I will tie them together so that it will be a whole two. (II) Into how many parts could we divide this two? Into two parts. Let us do it. (| |) Of what is this two made? Of one and one.

VII. MULTIPLICATION.

We have seen that two is made from one and one. I will show it to you again. (Two balls close together.) That is a whole two. (Separate the two balls.) How many balls are here? One. How many here? One. Then there is one here and one here; there is only *one* ball each time. *Here* is once one ball, and *here* is once one ball. How many times, then, can you see one ball? Two times. And two times one ball are how many balls? Two balls. Repeat after me: Two times one ball are two balls. We can also say it shorter, thus: two times one are two. Repeat that after me. (The same with blocks, etc.)

On the Blackboard.—I make a ring on the blackboard. How many rings have I made? You have made one ring. How many times have I made one ring? You have made one ring once. So that is once one ring. (Make another ring.) How many times have I made one ring now? You have made one ring two times. And two times one ring are how many rings? Two times one ring are two rings. Said shorter it is thus: two times one are two. Repeat it after me. Once more. Once again.

VIII. DIVISION.

James, come here to me. Take these two pencils; hold them up high. How many pencils has James? Two. Charles and John, come here. You shall divide these pencils between you. How many pencils has James? Two. How many boys are to divide these pencils between them? Two. Divide them. Hold them up high so that we can see how many each one has. How many has Charles? One. How many pencils has John? One. Then when two boys divide two pencils between them, how many does each boy receive? One. Repeat this together: If two boys divide two pencils between them, each boy receives one pencil. (Balls, slates, pens, etc.)

Result: When two is divided by two, each has one.

Blackboard.—Draw two apples not very near together. How many apples are there? Two. Frank and Willie come here; you may divide these two apples between you. How many apples are there? Two. How many boys are to divide these two apples between them? Two. Now divide them. How many will Frank have? One. Let him put his finger on his apple. How many can Willie have? One. Let Willie put his finger on his apple. When two boys divide two apples between themselves, how many apples does each receive? One. When two is divided by two, each has one. Repeat it again.

IX. COMPARISON.

I call out two children and give one ball to one and two balls to the other. How many balls has Lizzie? One. How many has Mary? Two. Who of the two has the most? Mary. How many balls has Mary? Two. And Lizzie has only how many balls? One. How many has Mary more than Lizzie? Mary has one more. Then the one that has two has one more than she that has one. Repeat that after me. The one that has two, etc. How many more is two than one? Two is one more than one. (The same with other things.)

Now tell me who of the two little girls has the least number of balls? Lizzie. How many balls has Lizzie? One. How many balls has Mary? Two. How many balls has Lizzie less than Mary? Lizzie has one less. Then she that has one ball has one ball less than she that has two balls. Repeat: she that has one ball, etc. How much less than two balls is one ball? One ball is one less than two balls. We say it shorter in this way: one is one less than two.

Blackboard.—(Make one straight line, and at a little distance two straight lines.) How many lines are here? One. How many there? Two. How many more lines there than here? One. Then two lines are how many more than one line?

Result: two is one more than one.

I draw one tree and at a little distance two trees. How many trees are here? One tree. How many there? Two trees. How many less trees here than there? One tree less. One tree, then, is how much less than two trees? One tree is one tree less than two trees. Shorter: one is one less than two.

X. ILLUSTRATIVE PROBLEMS. A. MENTAL EXERCISES.

a. Addition.

Charles had one slate, and his father gave him one slate more; how many slates had Charles then?

Julia ate one cake at breakfast, and one cake at dinner; how many cakes did Julia eat in all?

Bertha broke one plate yesterday, and to-day the careless little girl broke another plate; how many plates did she break in all?

b. Subtraction.

In a garden were two apple trees; the wind blew down one of the apple trees; how many apple trees were left standing?

There were two oranges on a plate; Thomas ate one of the oranges; how many oranges were still left on the plate?

Anna had two pins in her shawl; she gave one pin to Susie; how many pins had Anna remaining?

c. Multiplication.

Alfred went fishing, and twice he caught one fish; how many fishes did Alfred catch in all?

Emma has twice lost a needle; how many needles has Emma lost in all?

A soldier has twice fired a shot; how many shots has he fired in all?

d. Division.

Ida and Ella had two apples given them to divide between them; how many apples will each have?

If two little boys divide two marbles between them, how many marbles will each boy have?

The stable man has bought two measures of oats to divide between two horses; how many measures of oats must he give to each horse?

e. Comparison.

Benjamin had one picture-book and Jacob had two picture-books; how many more picture books had Jacob than Benjamin?

Fanny had two nuts in her basket and Rosa had one nut in her basket; which of the two little girls had the fewest nuts? How many less nuts had Rosa than Fanny?

Mr. Smith has two horses and Mr. Jones has also two horses; which of them has the most horses?

B. SLATE EXERCISES.

a. Composing Numbers.

Make one straight line. Make one other straight line. How many straight lines have you made? (Dots, crosses, etc.)

b. Counting forwards.

Make one dot. Make two dots a little way from the one dot. How many dots stand first? How many next? One, two. (Rings, etc.)

c. Counting backwards.

Make two crosses on your slates. Make one cross a little below the two crosses. How many crosses stand first? How many next? Two, one.

d. Addition.

If the children are to reckon on their slates in the four rules from 1 to 10 it is necessary for them to become acquainted with the four signs: $+ - \times \div$. This should be taught immediately with the operations on the number two. I tell them that $+$ means "and" or "add to;" that $-$ means "to take away," and is read *minus;* that $\times$ means so many times as the number expresses which stands next to it; that $\div$ means we are to divide; and that $=$ means is, are, remains, etc., and is read *equal.*

Although they do not learn immediately, and perhaps not readily, what these signs mean, yet, as a general thing, they learn them after a little time without much trouble.

For example: make one straight mark; then make a cross; then another straight mark; then $=$. How are you to read this example? One straight mark and one straight mark are. And how much are one and one? Two. Very well; now write these two straight marks at the end: | |+| = | |. (Dots, rings, etc.)

e. Subtraction.

Make two dots near together; after them make a short horizontal line (—); after that make one dot; then make two horizontal lines after the one dot. Tell me what the one horizontal line means. It means take away. Read the example to me. How many shall we take away? One. From what shall we take away the one dot? From the two dots. How many dots will remain? We will write the number of dots that remain after the two horizontal lines: .. — . = .

Of course the teacher is also to write all this, at the same time as the pupils, on the blackboard.

f. Analysis.

We have already learned what makes the number two What is the number two made of? One and one. We will now make the number two on the blackboard and slates. Make two straight marks; after them make two short horizontal lines. What is it that makes the number two? We will write that next. First make one straight mark. What sign means "and?" A cross. Make such a cross. Now it is read "two is one and." What must we add to that? One straight mark more. Make it. Let us read this example: | | = | + | .

g. Multiplication

How many was two times one? Two. Let us write that on the slate. Make two straight marks. That is a two. Now we will make a cross of two slanting lines. (×) This cross tells us that we shall take some number as many times as the number that stands before the cross. In short, this sign means "time" or "times." Tell me what you have on your slates now? Two times. Now make one straight mark more, and after it two short horizontal lines. Read what you have on your slates now. Two times one is. Tell me how much is two times one? Two. Very well. So we have only to put two more straight lines at the end of what we have written and it is finished. Read the whole of what you have written. | | × | = | | .

b. Division.

Do you remember how much each one receives when you divide two things between two persons? One thing. When we wish to divide anything we make this sign: ÷. What does this sign tell us to do? To divide. Now, make two straight marks on your slates. These two marks are to be divided; therefore, what sign must we write after them? Two dots, with a horizontal line between them. These two marks are to be divided into two parts; therefore, after the sign you must write two marks and then two straight horizontal lines. How must you read what you have written? Two divided into two parts. How much will there be in each part? One. Then what must we write at the end? One mark. Read what you have written: | | ÷ | | = | .

XI. THE FIGURES.

Make two dots, rings, etc. How many dots are there? Two. Then that is the number two. But grown people write the number two another way; they write it like this: 2. How many does this figure (2) mean? It means two. Now write a two as grown people write it.

Again: how many hands have you? Two. If you wished to write that, how many straight marks would you have to make? Two. But your mother would write it another way. If she wishes to write that there are two eggs in the closet, she does not make two straight marks, but she makes the figure two, thus: 2. This figure means just the same as the number two or as two straight lines. It makes no difference whether we write two straight marks, two rings, two dots, or the figure 2.

WRITTEN ARITHMETIC WITH FIGURES.

a. Addition.

You have learned to make two figures; what are they? One and two. Let us try to write with these figures. Pay attention. I write: 1+1=. Read what I have written. One and one is. How much is one and one? Two. What figure must I write at the end? A two. 1+1=2. You may now write the same on your slates.

b. Subtraction.

I write the figure 2. How much does that figure mean? It means two. I write a horizontal line, thus, — after the figure 2. What does that horizontal line mean? It means take away from. I now write the figure 1 and two horizontal lines after it. How shall we read what I have written? Two, one taken away, is; or two minus one is. What remains when I take one away? One remains. Then what figure must I write at the end? The figure 1. 2—1=1. You may now read it.

c. Analysis.

What is it that makes two? One and one. Let us write that with figures. Make the figure 2. After the figure make two short horizontal lines, thus: =. You say two is made from one and one; how many ones must we then make after what we have already written? Two ones. Make them. I also make them, but write them purposely thus: 1 1. Read that. One, one. But it must be one *and* one. What sign must we put between the ones? A cross. Make a cross (+) between the figures. How must we read the whole of what we have written? Two is one and one; or, two equals one and one. 2=1+1.

d. Multiplication.

Let us now reckon how many two times one is. How much is it? Two. Let us first write it with straight marks, as we did before, thus: | | × | = | |. How do we read that? We will now try to write it in figures. What shall we write first? A figure 2. What next? The sign for "times." What next? A figure 1. How do you read that? Two times one. Now write two short horizontal lines. How much is two times one? Two. Then what must we write last? Two. 2×1=2. You may now write it on your slates.

e. Division.

Now we will divide; and let us try that, also, with figures. How was the sign of dividing or division made? Two dots

with a horizontal line between them. We want to divide two cherries between two boys. We must first write what we wish to divide: 2÷. How many boys are to divide them? Two. What figure must we next write? The figure 2. 2÷2. Read what we have now written. Two divided by two. Make two short horizontal lines. How many cherries will each boy receive? One cherry. Therefore, what figure must we write at the end? The figure 1. 2÷2=1. Very well. You may now write it on your slates.

The foregoing is sufficient to show the method to be applied successively to each number from one to ten. Such teaching is indeed a hard task for the teacher's voice; but the arithmetic lesson must ever be considered the hardest in the lower classes, for, added to the great strain on the teacher's vocal powers, it is very difficult to maintain order and the usual school discipline and at the same time to keep the young minds interested and enthusiastic in the lesson. Moreover, it looks more difficult on paper than it is in practice. Again, no method can be exactly suited to every teacher; the individuality of the teacher must always have scope; let the teacher only never neglect thoroughness, perception, and variety of application.

The following tables will give an idea of how the exercises on the slate should be performed, both with straight marks and with figures, taking the number six as an example:

A. WITH STRAIGHT MARKS.

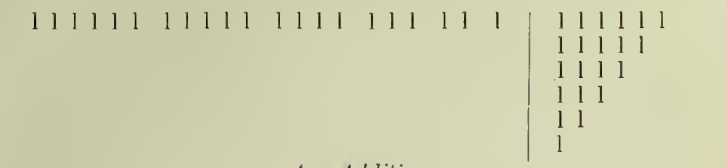
1. *Composing the number.*

1 1 1 1 1 1

2. *Counting forwards.*

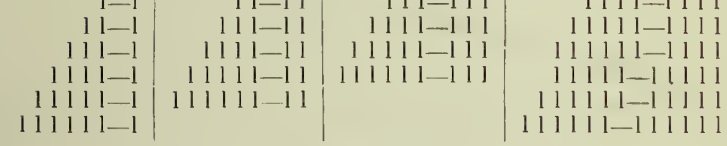
1	1
1 1	1 1
1 1 1	1 1 1
1 1 1 1	1 1 1 1
1 1 1 1 1	1 1 1 1 1
1 1 1 1 1 1	1 1 1 1 1 1

3. *Counting backwards.*

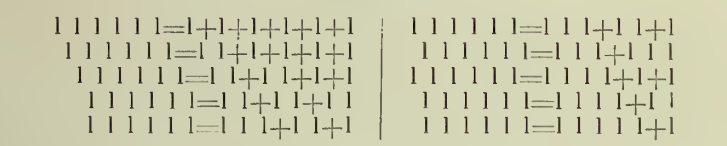


4. *Addition.*

5. *Subtraction.*

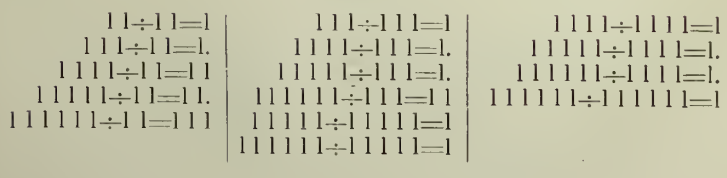


6. *Analysis.*



7. *Multiplication.*

8. *Division.*



9. *Comparison.*

1 1 is 1 more than 1	1 1 1 is 1 1 more than 1
1 1 1 is 1 " " 1 1	1 1 1 1 is 1 1 " " 1 1
1 1 1 1 is 1 " " 1 1 1	1 1 1 1 1 is 1 1 " " 1 1 1
1 1 1 1 1 is 1 more than 1 1 1 1	1 1 1 1 1 1 is 1 1 more than 1 1 1 1
1 1 1 1 is 1 1 1 more than 1	1 1 1 1 1 is 1 1 1 1 more than 1
1 1 1 1 1 is 1 1 1 more than 1 1	1 1 1 1 1 1 is 1 1 1 1 more than 1 1
1 1 1 1 1 1 is 1 1 1 more than 1 1 1	1 1 1 1 1 1 is 1 1 1 1 1 more than 1
1 is 1 less than 1 1	1 is 1 1 less than 1 1 1
1 1 is 1 less than 1 1 1	1 1 is 1 1 less than 1 1 1 1
1 1 1 is 1 less than 1 1 1 1	1 1 1 is 1 1 less than 1 1 1 1 1
1 1 1 1 is 1 less than 1 1 1 1 1	1 1 1 1 is 1 1 less than 1 1 1 1 1 1
1 1 1 1 1 is 1 less than 1 1 1 1 1 1	
1 is 1 1 1 less than 1 1 1 1	1 is 1 1 1 1 less than 1 1 1 1 1
1 1 is 1 1 1 less than 1 1 1 1 1	1 is 1 1 1 1 1 less than 1 1 1 1 1 1
1 1 1 is 1 1 1 less than 1 1 1 1 1 1	1 is 1 1 1 1 less than 1 1 1 1 1

B. WITH FIGURES.

a. *Writing of figures, thus :* 2=1 1 ; 3=1 1 1 ; 6=1 1 1 1 1 1.

b. *Forwards :* 1, 2, 3, 4, 5, 6.

c. *Backwards :* 6, 5, 4, 3, 2, 1.

d. *Addition.*

1+1	1+2	1+3	1+4	1+5
2+1	2+2	2+3	2+4	
3+1	3+2	3+3		
4+1	4+2			
5+1				

e. *Subtraction.*

1—1	2—2	3—3	4—4	6—6
2—1	3—2	4—3	5—4	
3—1	4—2	5—3	6—4	
4—1	5—2	6—3		
5—1	6—2			
6—1				

f. *Analysis.*

6=1+1+1+1+1+1	6=3+2+1
6=2+1+1+1+1	6=3+3
6=2+2+1+1	6=4+1+1
6=2+2+2	6=4+2
6=3+1+1+1	6=5+1

g. Multiplication.

1×1	1×2	1×3	1×4
2×1	2×2	2×3	1×5
3×1	3×2		1×6
4×1			
5×1			
6×1			

h. Division.

$2\div2$	$3\div3$	$4\div4$	$5\div5$	$6\div6$
$3\div2$	$4\div3$	$5\div4$	$6\div5$	
$4\div2$	$5\div3$	$6\div4$		
$5\div2$	$6\div3$			
$6\div2$				

i. Comparison.

6 is 1 more than 5.	1 is 5 less than 6.
6 is 2 " " 4.	2 is 4 " " 6.
6 is 3 " " 3.	3 is 3 " " 6.
6 is 4 " " 2.	4 is 2 " " 6.
6 is 2 " " 1.	5 is 1 " " 6.

Of course all these examples are to be given promiscuously, as well as in regular order.

C. ILLUSTRATIVE PROBLEMS.

A hunter went out to hunt. In the forenoon he shot 3 hares, and in the afternoon he shot 3 hares more. How many hares did he shoot that day ?

I saw 4 little birds sitting on the roof of a house ; after a while two more birds flew on the roof and sat beside them. How many little birds in all were sitting on the roof of the house ?

Minnie had a flower garden. One morning she found 1 rose blossomed, and the next morning she found 5 roses more in bloom. How many roses did she find in all ?

b. Subtraction.

In my garden there were 6 beautiful trees, but 4 of the trees have been cut down. How many trees remain in my garden ?

I had 6 goldfishes in a globe, but 4 of them have died ; how many goldfishes are left in the globe ?

The old hen had 6 chickens, but a fox caught 5 of them ; how many chickens did the poor old hen have left ?

c. Multiplication.

George had two marbles with which he was playing. Freddy went running by and called out, Oh, I have 3 times as many marbles as you! How many marbles had Freddy?

Annie said that 3 times 2 are 6; but Jennie said 3 times 2 are 5; which of the two little girls was right?

James was going down the street and saw some boys' coats for sale in the window. I know how much one of these coats costs, said he to the man; it costs 1 dollar; no, said the man, it costs 6 times 1 dollar. Can you tell how much one of those coats would cost?

d. Division.

A mother had two little children; one day she brought home 6 apples to divide between them; can you tell me how many apples each little child received?

A teacher had 6 picture books to divide among those scholars who were very good in school; but there were only 3 good children that day, so she had to divide the 6 picture books among those 3 good children; how many picture books did each get?

Uncle John loves little boys very much, and one day he bought 6 balls to divide among 6 little boys whom he knew; how many balls did he give to each boy?

After the pupils have in this manner been brought as far as the number ten, other exercises on numbers learned may be introduced; and these, as well as all others, it is well for the teacher to prepare beforehand on paper.

Examples:

1. When I have 3, how many are wanting to make 5? When I have 7, how many are wanting to make 10? When I have 5, how many are wanting to make 8?

2. *Place of the Figures.*

a. After 1 comes 2, after 2 comes 3, after 3 comes 4, etc.

b. Before 10 comes 9, before 9 comes 8, before 8 comes 7, etc.

c. What follows 3 ? what follows 6 ? 8 ? 9 ?

d. What comes before 4 ? before 7 ? before 9 ? before 10 ?

e. What number stands between 2 and 4 ? between 6 and 8 ? between 9 and 10 ?

f. Between what numbers does 3 stand ? 5 ? 7 ? 9 ?

3. *Value of the numbers.*

a. What number is one greater than 4 ? than 6 ? than 9 ? What number is two greater than 2 ? than 4 ? than 6 ? than 9 ? What number is three greater than 2 ? than 4 ? than 6 ? etc. What number is 4 greater ? 5 greater ? etc.

b. What number is one less than 3 ? than 7 ? than 9 ? What number is 3, 4, 6, etc., less than 7 ? than 9 ? than 10 ?

While resorting continually to sense-perception objects in reckoning—such as dots, lines, abacus balls, etc.—never forget that the ten fingers of the child are the best apparatus of all.

In these mental exercises the children must be animated but quiet. Do not allow them to answer in too low a tone. The answers should always be given in complete sentences. Let the right answer sometimes be given in chorus, sometimes individually. Let the teacher be animated and spare no words ; when tired, rest, and busy the children with some quiet occupation. Be patient, and do not think because you know immediately how many 3 times 3 are, that the child also must answer immediately. Never despair of those who are dull, but work with them hopefully ; I have found more "stupid" children in arithmetic than in any other study of the primary classes. To some children who learn other things well, it is almost impossible to teach how many 2 and 1 are ; and others seem to be totally wanting in the capacity for learning numbers, as we find grown people with absolutely no ear for music.

DEPARTMENT OF PUBLIC INSTRUCTION.

Some teachers appear to labor under the impression that after the 1st of January, 1873, when the new school law goes into effect, there will be a change of text books. But the fact is, that even if a change were thought advisable, there can be no change until after the expiration of four years from July 12th, 1870, the date when the text books now in use were adopted. The only question with us has been, whether cities and incorporated towns which, according to the new law, are excepted from the uniform State series of text books, would be excepted on the first day of January, 1873, or only after the expiration of the four years above spoken of. The question was submitted to the Attorney General, and the following is his decision:

OFFICE OF THE ATTORNEY GENERAL OF THE STATE OF CALIFORNIA,
SACRAMENTO, December 17th, 1872.

HON. H. N. BOLANDER, Superintendent of Public Instruction.

DEAR SIR: Your communication of yesterday has been received and considered. In answer to your inquiry, it is my opinion that Boards of Education of incorporated cities and towns will have no power to change the series of text books adopted by the State Board of Education, in 1870 and 1871, until the four years from the time of their adoption have expired. The State Board itself cannot change a series before that time, and it is clear that other Boards cannot.

The School law incorporated into the Political Code, and which goes into effect January 1st, 1873, is merely a continuation of the school law now in force, and will not have the effect of a new enactment. (See Sec. 5, Political Code.)

Sec. 1,874 provides that "any books, once adopted as part of a uniform series, must be continued in use for not less than four years." This is a continuation of a portion of Sec. 88 of the present school Act, is in full force and effect, and will continue to be so after January 1st, 1873; so that the authority conferred by subdivision five of Sec. 1,521 cannot be exercised by the city Boards of Education to change the text books, now a part of the uniform State series, until the expiration of the four years from the time they were adopted. I think this is the plain and evident meaning of the law.

Yours, very truly,

JOHN L. LOVE, Attorney General.

For the information of those interested we shall give the text books authorized by the State Board of Education, and their date of adoption:

Reading—McGuffey's Series of Readers, July 12th, 1870.
Spelling—Willson's Primary and Larger, July 13th, 1870.
Arithmetic—Robinson's Series (except Intellectual), July 12th, 1870.
" Colburn's Intellectual, September 29th, 1870.
Grammar—Brown's Series (re-adopted), July 13th, 1870.
Geography—Monteith's Series (re-adopted), July 13th, 1870.
History—Swinton's Condensed U. S. History, June 13th, 1871.
Word Analysis—Swinton's, June 13th, 1871.
Physiology—Cutter's Smaller and Larger (re-adopted), July 13th, 1870.

The penalty for refusing or neglecting to use the text books adopted by the State Board of Education is given in section one thousand eight hundred and seventy-five of the Political Code: "If any city or district refuse or neglect to use the books that may be prescribed, or use any other text books in any of the prescribed studies, the Superintendent of Public Instruction must hold from such city, town, or district twenty-five per cent of all State school moneys to which it may be entitled until it comply; and any moneys so withheld must be apportioned by the Superintendent, at the next annual apportionment, in the same manner as other school moneys in the Treasury."

NIGHT Schools have been established in Sacramento City. A move in the right direction. All cities and large towns ought to do the same.

THE SOLANO TEACHERS' ASSOCIATION, held in Suisun December 5th, was attended by nearly every teacher in the county, and the exercises were interesting and profitable to those who participated.

THE TEACHERS' INSTITUTE OF BUTTE COUNTY met at Chico on December 4th, and held a three days' session. It was well attended, there being over thirty teachers present. The exercises were varied and instructive, consisting of practical illustrations of methods of teaching, essays, etc. The State Superintendent and S. S. Boynton were the lecturers. From the resolutions adopted we cull the following:

Resolved, That to R. H. Allen be presented the thanks of the Institute for the clear manner in which he has elucidated the principles of book-keeping.

Resolved, That we tender our thanks to the citizens of Chico for the interest manifested in the cause of education by their attendance at the lectures and sessions of the Institute.

Resolved, That a failure on the part of teachers to attend the County Institute denotes a lack of interest in the cause of education, and may be properly regarded as unprofessional conduct; and as the law makes provision for teachers attending the Institute, it should attach a penalty for the failure to do so.

Resolved, That our most sincere thanks are due and are hereby presented to Hon. H. N. Bolander for his presence, the lecture of last evening, and the able, philosophical, and logical address of this morning's session.

Resolved, That the thanks of the Institute be tendered to H. T. Batchelder, County Superintendent, for the courteous and efficient manner in which he has presided over the proceedings of this body.

Resolved, That the thanks of this Institute are due to the Secretaries, O. E. Swain and Miss Mona Baker, for the able and interesting report of the proceedings of this Institute.

STATE UNIVERSITY.—Ex-Governor Haight has been unanimously elected to fill the vacancy in the Board of Regents occasioned by the death of Hon. Edward Tompkins.

DONATION.—At the last meeting of the Regents of the State University of California Mr. S. Nolan, Proprietor of the Belle View Nursery at Oakland, presented, in the name of his daughter Camilla, a duplicate of every kind of Plant grown in his large nursery. It may be stated in connection with this, that Mr. S. Nolan paid particular attention to our indigenous trees and shrubs, and that he always planted a specimen of each kind in his large garden, affording thereby an opportunity to lovers

of plants to see what plants will look like in an advanced state of growth. The donation was gladly accepted, and the sum of four hundred dollars voted to enable Prof. E. Carr to have the plants transferred to the University grounds, and there properly taken care of.

THE STATE BOARD OF EDUCATION

Met at the office of the Superintendent of Public Instruction, December 13th, 1872, at three P. M.

Present—Governor Booth, Superintendent Bolander, Messrs. Widber, Baker, Jackman, Jones, Leadbetter, Hill, and Robertson, and Dr. Lucky.

Absent—Mr. Lynch.

Governor Booth in the chair.

The minutes of the previous meeting were read and approved.

Dr. Lucky, from the Committee appointed to report rules and regulations for the government of Boards of Examination, submitted a report.

On motion of Mr. Jones, the report was recommitted to the Committee, with instructions to report at the evening session of the Board.

Mr. Bolander, from the Committee to report additional selections to add to the list of books for district libraries, submitted a report, which was laid over till the evening session.

Mr. Baker, from the Committee to report a plan for the uniform and systematic grading of the public schools, stated that it was impossible to adopt any plan until the new course of studies had been adopted. The plan must be based upon the course of studies, and he asked further time, which was granted.

On recommendation of the State Board of Examination, life diplomas were granted to the following persons:

Miss Minnie Graf, of San Francisco.
Miss S. A. Jessup, of San Francisco.
Mrs. F. E. Reynolds, of San Francisco.
Mrs. L. A. Morgan, of San Francisco.
Miss Carrie L. Smith, of San Francisco.
Miss Cornelia E. Campbell, of San Francisco.
Miss M. E. D'Arey, of San Francisco.
Miss Frances Simon, of San Francisco.
A. J. Furley, of Alameda county.
Miss L. S. Templeton, of Sacramento Co.
F. Gates, of Santa Clara county.
S. M. Shearer, of Monterey county.
A. F. Olinger, of Santa Cruz county.
Miss S. J. Hodgdon, of San Joaquin.
Samuel T. Black, of Yuba county.
W. H. Fry, of Solano county.
J. N. Mackall, of Lake county.
T. B. White, of Nevada county.
Mrs. C. R. Watson, of Nevada county.

Satisfactory evidence having been produced that N. Furlong, the holder of a life diploma, had been guilty of immoral and unprofessional conduct, on motion, the life diploma heretofore granted to Mr. Furlong was unanimously revoked.

The question of having the Constitution of the United States and Constitution of the State of California published in connection with the School Law was referred to the Superintendent, with power to act.

On motion, adjourned to meet at half past seven o'clock, P. M.

EVENING SESSION.

The Board was called to order at half past seven P. M. by Superintendent Bolander. Governor Booth not being present, Mr. Baker, of Santa Clara, was, on motion of Superintendent Bolander, called to the chair.

Dr. Lucky presented the modified report of the Committee on rules and regulations for the government of Boards of Examination. A long debate followed the presentation of this report, during which Governor Booth arrived and took the chair.

On motion of Mr. Jackman, City and County Boards of Examination were instructed to forward the examination papers of all applicants for State certificates to the State Board of Examination.

Mr. Jones moved to fix the percentage for State certificates of first grade at eighty-five per cent.; of second grade at eighty per cent.; for county certificates of the first grade at eighty per cent., and of second grade at seventy-five per cent. On calling the roll the motion was lost by the following vote: Ayes—Lucky, Jones, Jackman, Hill. Noes—Baker, Widber, Robertson, Bolander.

On motion of Mr. Baker, the percentage of State educational diplomas was fixed at ninety per cent.; for State certificates of first grade, eighty-five per cent.; for second grade, eighty per cent.; for third grade, seventy-five per cent.

On motion of Mr. Jones, the minimum percentage for county certificates of the first grade was fixed at eighty per cent.; for second grade at seventy-five per cent.; for third grade at seventy per cent.

On motion of Mr. Baker, the State Board of Examination was instructed to furnish the same examination questions for all grades, so far as the studies are prescribed by law.

On motion of Mr. Jones, the State, City, and County Boards of Examination were instructed to examine applicants for State and county certificates of the third grade in the same studies as those of the second grades, respectively.

On motion of Superintendent Bolander, the following books [see below] were added to the books already prescribed for use in district libraries.

On motion, at half past ten, the Board adjourned to meet at the call of the Secretary.

HENRY N. BOLANDER, Secretary.

BOOKS ADDED TO THE LIST OF LIBRARY BOOKS.

BIOGRAPHY.

- Life of Frederick the Great.
- Everett's Life of Washington.
- Eminent Statesmen, 6 vols.
- Benjamin Franklin.
- Daniel Webster.
- Daring Deeds.
- William Penn.
- Henry Clay.
- Noble Deeds.
- Famous Generals, 6 vols.
- General Washington.
- General Taylor.
- General Jackson.
- General Lafayette.
- General Marion.
- Napoleon Bonaparte.

EDUCATIONAL.

- McGuffey's Readers.
- Willson's Readers.
- Willson's Spellers.
- Davies' Spellers.
- The Elements of Intellectual Science—Noah Porter.
- Mulligan's Structure of the English Language.
- Modern Philology.
- Business Arithmetic—by Bryant, White & Stowell.
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English Kindergarten, Practical Guide—by Johann and Bertha Rouge. Fourth Edition—London, '71.
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ABSTRACT OF STATISTICS

FROM STATE SUPERINTENDENT'S REPORT, FOR SCHOOL YEAR ENDING JUNE 30, 1872.

	1871.	1872.	Increase.
White boys between 5 and 15 years old.....	65,359	68,840	3,481
White girls between 5 and 15 years old.....	62,549	66,368	3,819
Total whites between 5 and 15 years old...	127,908	135,208	7,300
Negro boys between 5 and 15 years old	480	489	9
Negro girls between 5 and 15 years old	421	385	Decrease–36
Total negroes between 5 and 15 years old.	901	874	Dec.—27
Indian boys between 5 and 15 years old.....	765	708	Dec.—59
Indian girls between 5 and 15 years old.....	542	571	29
Total Indians between 5 and 15 years old, living under guardianship of whites.....	1,307	1,279	Dec.—28
Total census children between 5 and 15 years old.....	130,116	137,361	7,245
Total whites under 5 years of age.....	65,799	69,222	3,423
Total negroes under 5 years of age.....	249	254	5
Total Indians under 5 years of age....	254	247	Dec.—7
Total children under 5 years of age.....	66,302	69,723	3,421
Total whites bet. 5 and 15 at public school..	83,039	92,265	9,226
Total negroes bet. 5 and 15 at public school..	449	385	Dec.—64
Total Indians bet. 5 and 15 at public school..	140	144	4

Total attended public schools between 5 and 15	83,628	92,794	9,166
Number whites attending private school, between 5 and 15	15,452	13,677	Dec.—1,775
Number negroes attending private school, between 5 and 15	58	90	32
Number Indians attending private school, between 5 and 15	14	20	6
Total number attending private school, between 5 and 15	15,524	13,787	Dec.—1,737
Number whites who attended no school, between 5 and 15	28,587	29,266	679
Number negroes who attended no school, between 5 and 15	270	399	129
Number Indians who attended no school, between 5 and 15	602	1,115	513
Total children between 5 and 15 who attended no school	29,459	30,780	1,312
Total number enrolled	91,332	94,720	3,388
Average number belonging	72,031	72,972	941
Average daily attendance	64,286	65,700	1,414
Percentage of attendance on average number belonging	89	90	1
Total number of schools	1,550	1,612	62
Total number of male teachers	820	881	61
Total number of female teachers	1,232	1,420	188
Total number of teachers	2,052	2,301	249
Number of new school houses erected	125	124	Dec.—1
Cash received from State apportionment	$423,550 89	$424,021 85	$470 96
Cash received from county taxes	889,622 86	988,636 21	99,013 35
Cash received from miscellaneous sources	571,413 09	719,125 52	147,712 43
Total cash receipts	$1,884,586 84	$2.131,783 58	$247,196 74
Amount paid for teachers' salaries	$1,103,125 14	$1,282,799 15	$179,674 01
Amount paid for sites, buildings, repairs and school furniture	390,158 40	290,119 01	D100,039 39
Amount paid for school libraries	26,766 30	25,793 54	D927 76
Amount paid for school apparatus	3,689 46	4,720 13	1,030 67
Amount paid for rent, fuel, and contingent expenses	204,094 19	277,900 99	73,806 80
Total expenditures	$1,727,833 49	$1,881,332 82	$153,499 33
Total valuation of school property	3,362.580 18	3,822,663 15	460,082 97

BOOK NOTICES.

A SMALLER SCHOOL HISTORY OF THE UNITED STATES. By DAVID B. SCOTT. With Maps and Engravings. New York: Harper & Bro. San Francisco: A. Roman & Co.

A small volume of 235 pages. Print and illustrations, excellent. This little work has been designed to meet the wants of such students who have no time to complete the study of "Harper's School History of the United States." The appendix is particularly interesting and useful. It comprises the following: States admitted and

Territories organized since 1787. Settlement and admission of the States. Presidents and Vice Presidents of the United States. Declaration of Independence. Constitution of the United States, with the fifteen amendments to the Constitution, and chronological table. We recommend it to teachers and the public generally.

OUTLINES OF HISTORY. By EDWARD A. FREEMAN, D. C. L., New York: Holt & Williams, 1872. San Francisco: A. S. Bancroft & Co., and Payot, Upham & Co.

A neat volume of 366 pages, fine print. It is the first book of a series on general history, on a plan entirely in harmony with the best improved methods of teaching history. We have always held the opinion that without clear notions of general history the history of particular countries can never be rightly understood. In conformity with this established principle, the author presents us an outline of general history in seventeen chapters, or, as it were, in seventeen tableaux. These will be followed by a series of special histories of particular countries. According to our views, this volume ought to be preceded by a series of biographical sketches of the most eminent men of each era; thus proceeding from particulars to the general.

A SCHOOL HISORY OF THE UNITED STATES. By W. H. VENABLE. Wilson, Hinkle, & Co., Cincinnati and New York, 1872.

A neat volume of 247 pages, besides an appendix, comprising the following: Declaration of Independence; Constitution of the United States, and amendments to the Constitution. The execution of the accompanying maps is simply beautiful, the best we have yet seen; and the cuts representing the leading men of the country are better, truer, and finer than we usually find them in school books. The print is clear and beautiful.

We like the style of the author, being flowing, simple, plain, and direct; and also his idea of referring constantly to the accompanying maps by simple questions, making instruction thereby more visual, and affording teachers an opportunity of showing the true relation of historical facts, and of pointing out their causes and effects.

We recommend it most heartily to all teachers and parents.

A TEST SPELLING BOOK FOR THE USE OF ADVANCED CLASSES. By W. D. HENKLE. Cincinnati: Wilson, Hinkle & Co. San Francisco: Payot, Upham & Co.

We do not agree with the author in the assumption that there is a need of a good spelling book for advanced classes. We have already too many of such utterly useless books. They do more harm than good; for they violate every sound and philosophical principle of instruction. They are the bane of the school room; the creators of thoughtlessness. The study and committing to memory of mere empty signs is the most degrading, for it reduces God's noblest creature to a mere machine. We create words when we have created an idea; let our children do the same.

A compilation and proper arrangement of our homonyms would be very instructive and useful.

ALDEN'S CITIZEN'S MANUAL. A TEXT BOOK ON GOVERNMENT FOR COMMON SCHOOLS. By REV. JOS. ALDEN, D. D., LL. D. New York: Sheldon & Co.

Whenever we find the subject matter of a text book arranged in questions and answers, we feel as if no one had yet lived who had carefully investigated and properly set forth the true principles of teaching.

Perhaps the author has forgotten that teachers are now of age; that they need no more end. They have ceased to be ruminating animals. They have relinquished three of their stomachs, finding it exceedingly difficult to feed four with their scanty salary.

THE YOUNG DECLAIMER. By CHARLES NORTHEND. New York: A. S. Barnes & Co.

A fine litttle volume of 205 pages. The very name of the author affords a guarantee that the material selected is of the very best.

MCGUFFEY'S NEW JUVENILE SPEAKER. Cincinnati: Wilson, Hinkle & Co.

A neat volume of 228 pages. The subject matter is very instructively arranged. A novel, interesting, and valuable feature is the introduction of choruses, to be spoken, read, or sung in concert.

OXFORD'S JUNIOR SPEAKER. By W. OXFORD. Philadelphia: E. H. Butler & Co.

The author most respectfully warns compilers not to appropriate his property. We sincerely hope compilers will comply with his request.

INDEPENDENT SIXTH READER. By J. MADISON WATSON. New York: Barnes & Co., 1872.

A large volume of 454 pages. Print, large and heavy faced; very agreeable to the eye. The pieces are selected from the very best authors of England and America. The book is well adapted for high schools.

FIRST LINES OF ENGLISH GRAMMAR. THE INSTITUTES OF ENGLISH GRAMMAR. Both works by GOULD BROWN. New York: William Wood & Co., 1872.

Both books are so well known, and so much in use here, that further comment is needless.

1. STODDARD'S AMERICAN INTELLECTUAL ARITHMETIC. 2. STODDARD'S COMPLETE ARITHMETIC. 3. THE COMPLETE SCHOOL ALGEBRA. By JOHN F. STODDARD. New York: Sheldon & Co.

Three new text books which differ not, in a methodical point of view, from any of the rest on the same subject.

ECLECTIC PRIMARY COPY BOOK. Cincinnati: Wilson, Hinkle & Co.

A neat little copy book, which may serve teachers as a guide.

CLARK'S BEGINNER'S GRAMMAR. With illustrations and diagrams. By H. W. Clark, A. M. New York and Chicago: A. S. Barnes & Co.

In the hands of teachers we consider this grammar a good book, well calculated to show him the manner of effectual teaching, to force him gradually from text book slavery, and make him an independent agent in the school room. In the hands of pupils we fear its effect would be no better than that of any other text book on grammar. We must heartily recommend it to our teachers; for we sincerely believe that a close and careful study of it will convince many a one that grammar may be taught more effectually without than with a text book. Such lessons are profitable, both to pupils and teachers, and will produce happy results. Try it.

INDEPENDENT CHILD'S SPELLER. Printed in imitation of writing. By J. Madison Watson. New York and Chicago: A. S. Barnes & Co., 1873.

A small book of 80 pages. We are glad to see this little book; it indicates another step onward to a rational method of teaching how to read and write. The idea that there is something radically wrong in our manner of teaching seems to become daily more general. It is humiliating to us to confess that even our old experienced and professional teachers are still hesitating to admit that the reform must begin in the primary department. As long as we entrust beginners to the most inexperienced of our teachers, we shall see the same results. The superstructure will never stand the

test as long as the foundation is weak and insecure. Had we absolute control in school matters, and not sufficient means to maintain all an equal length of time, we should close the higher, at once, and begin by reorganizing first the primary department. We should offer a good premium for well instructed and thorough teachers, willing to devote themselves to primary teaching. *The first two years of a child's school years are the most important, the most influential, the most beneficial.* It is comparatively, an easy task to teach higher grades well when pupils come thoroughly prepared from the primary. We are well aware of the fact that many a so called educator sneers at the idea of beginning to reform primary instruction; but that must be granted: for every being was given some manner of expression.

THE PAYSON, DUNTON & SCRIBNER MANUAL OF PENMANSHIP. P. D. & S., authors. New York and Chicago: Woolworth, Ainsworth & Co.

Teachers desirous of possessing a manual on writing, containing all that is wanted to make writing lessons instructive, pleasant, and efficient, will find the above mentioned book second to none. Besides its usefulness, we consider this book a perfect piece of art, an object of beauty which ought to be in the hands of every teacher.

MONTEITH'S COMPREHENSIVE GEOGRAPHY. With map drawing and relief maps. By James Monteith. New York and Chicago: A. S. Barnes & Co. San Francisco: Libby & Swett.

This book is quite an improvement, in point of execution, on the geographical series of the author. The maps are better, and are much less incumbered with useless details. The map questions are reduced to a minimum, to the most important. Compared with others, it is certainly concise, simple, and diversified in regard to the matter presented. With a good preparatory course on local geography, it would answer all the wants of our schools.

DISTRICT CLERK'S RECORD BOOK. Third edition. San Francisco: Libby & Swett.

District Clerk's will find this book extremely useful. It will enable them to systematize and facilitate their work of keeping accounts and records.

THE NATION.

On the 2d of January, 1873, the *Nation* enters upon its sixteenth volume. If any of our readers wish to subscribe for a journal which stands at the head of American weeklies, let them send five dollars to the publisher of the *Nation*, New York. The first three pages of every number are filled with commentaries on the current news of the week, domestic and foreign, political or otherwise, written in a spirited style, and free from all narrow partisanship. Then follow short essays on political and social topics; correspondence describing the most important events of the political and social life of Europe; "notes" announcing new works of literature and art, or criticising events, men and books; and last, though not least, reviews of books and art criticisms. The reviews of educational books alone are worth the price of yearly subscription to teachers who wish to keep themselves advised about text books.

THE OVERLAND FOR JANUARY.

With this number the *Overland* begins its tenth volume. The contents are unusually varied and interesting. The last installment of Joaquin Miller's *Isles of the Amazons* is very acceptable. Besides this, we have of poetry two short pieces, one of which, by Miss Coolbrith, deserves, from its tender simplicity, to be quoted in full:

CHRISTMAS EVE: 1872.

Peace in thy snowy breast,
O! cloud from storm at rest!
Peace in the winds that sleep
Upon the deep.

Peace in the starry height,
Peace infinite,
Through all the worlds that move
Within His love.

O! all sad hearts, that be
On land or on the sea,
God's peace with you rest light
This Christmas night!

And with the souls that stand
In that dear land
Where pain and all tears cease,
Most perfect peace!

The prose pieces are excellent, excepting *The Ghost of Rummelsburg*, which for us has lost its relish, though it vividly recalls the time when first we read it; when the probing of the mysteries of the *Hexensprung* of the *Bremer Wall* was the goal of our ambition. *Half and Half* owes its insertion, we trust, only to the fact that in complement to the season a "Christmas Chronicle" had to be given. In *The City of the Golden Gate* San Francisco receives some trenchant though deserved criticisms. *Brave Mrs. Lyle* recalls some of the horrors of the late civil war. *A Journey in a Junk* describes a very adventurous and unusual trip to a remarkable Buddhist temple in Cochin China. The "Etc." and book notices are very full and readable.

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CALIFORNIA TEACHER.

FEBRUARY, 1873.

VOL. X. SACRAMENTO. No. 8.

[*For the California Teacher.*]

GUIDES FOR INSTRUCTION IN LOCAL GEOGRAPHY.

[FROM THE GERMAN OF C. DIEFENBACH, BY MRS. LANE.]

I. General Local Geography.

a. *Idea conveyed by the term "Local Geography" or Geography of Home.* The first thing in sketching a plan for teaching local geography or the geography of home, is to determine what we mean by *our home*. Let us then ask what is generally understood by this expression? I am at home in the house where I live, in comparison with other houses; at home in the city or town which contains my dwelling house, in comparison with other cities or towns; at home in the scenes to which my eyes are accustomed, in comparison with strange scenes; at home in the land of my birth in comparison with foreign lands; finally, at home on the earth in comparison with other heavenly bodies, and only really first at home in the life beyond, in comparison with our pilgrimage on earth. Thus we see how variable may be the extent of this idea, how little and how much it may convey. But for our purpose a definite extent and definite limits are absolutely necessary. We will therefore agree to understand by the term home the place where we live and the scenery within our vision (without taking in points of great distance); the study of what lies within these limits is called *local geography*.

b. *Purpose of the Study of Local Geography, and its Relations to other Studies.*—The aim of this branch of instruction is then to give a knowledge of home. But here again we must be more exact, for how much may be comprised in the term *knowledge of home!* It comprises the visible phenomena of the heavens and of the atmosphere, the face and nature of the soil, also its irrigation; still further, the native animals, plants and minerals; the artificial productions of its inhabitants; their dwellings and principle occupations; their social and foreign relations (the latter being generally expressed by trade and its channels); and, finally, the history of the place. Of course it is easy to see that all these subjects cannot be exhaustively treated in this branch of instruction; that would be the work of a lifetime, and more; think for a moment merely of the native plants and animals, and the historical part. Such is not to be the task of the instructor in local geography; to speak figuratively, he is not to count the stones in the street, nor the shingles and slates on the roof; he has, rather, only to teach what would be found in *any* good geography of any country, province or district. We should therein find mention of the natural and artificial productions, and of the history of the land, but only of the most important and characteristic, together with one or more marked, peculiarities; but we should find no complete enumeration, discription or representation of these. The instruction of *local* geography must be the same; here, also, mention is only to be made of the most important and most striking natural productions, omitting all details; here, too, we should find something of history, but only of those events and occurrences of which the place mentioned has been the scene.

But has, then, the geography of a country nothing to do with the sun, moon, stars and storms? By no means, although this belongs to general geography. This speaks of the revolution of the earth on its axis; of its relation to the other heavenly bodies, particularly to the sun; of climate and seasons; and for this division of general geography, observation of the native skies and of the atmosphere, may be a preparation. Thus local geography is essentially of a *geographical* nature, and, as such, is to be especially preparatory to future geographical studies.

Local geography also prepares and places in your hand other

branches of instruction; for instance, as already mentioned, *the natural sciences*, in giving the names and localities of certain plants, animals, etc.; *natural philosophy*, in taking notice of common natural phenomena to be observed by the eye; history, in looking back into the past.

Local geography is also very important in teaching the command of *language*, inasmuch as the teacher should insist upon the correct, clear and complete expression of what has been clearly comprehended. It also affords abundant material for short *written* exercises. It even touches upon *mathematics*, since, now and again, there are distances to be measured and counted, if only by steps.

Finally, I would mention *drawing* as another branch which local geography uses as her hand-maid in the representation of different geographical forms, in turn serving her again by thus training hand and eye for the study of drawing.

e. *Art and Manner of Instructing.*—Local geography is an integral part of sense-perception, or object teaching, and, as such, should be commenced with the child's first entrance into school. The purpose of object teaching is to lead children to observe and to describe objects seen; it is to practise the senses of the child in correct perception and conception, and, for this purpose, different objects are selected for the child to examine. It also introduces subjects and phenomena which cannot be directly produced before him, but which the child has already perceived or can perceive outside of the school-room; in a word, phenomena lying within the sphere of the child's life. In this way the child attains to a conscious knowledge of various perceptions already made by him, and these become regulated and raised to the rank of distinct ideas. But here the teacher has to guard against proposing too much to himself, since, although the child *might* have seen a great deal, there is perhaps much that he has not methodically observed, or that he has even not seen at all.

Hence we see that the principal aim of sense-perception teaching is of a methodical nature; it is to exercise the senses and to cultivate the power of observation. But as the cultivation of this power takes place by means of material substances, it therefore does not exclude but includes the material plastic elements, namely: knowledge in regard to the phenomena con-

sidered. It is, at the same time, from these single building stones collected one by one, that we are more easily enabled to build up later the mental structure, the idea of home. And the "mentalizing," if I may be permitted the word, of surrounding phenomena peculiar to our home, the combining of them into one total image, is properly the final aim of this instruction. This we might call the top round of the ladder, and I would place it in the third school year, designating it by the name, Exclusive Local Geography. As on the lower round of the ladder *method* took pre eminence, so, on the upper round it is to *material* that pre-eminence is to be given.

But yet the province of local geography proper is to take up within itself the normal aim of sense-perception teaching, and, at the same time, to continue in a certain direction beyond the limits of this aim. Its province is less to communicate and to teach, than so to guide through continual observation and examination, as to enable the pupils to acquire for themselves the desired knowledge. But there is much besides which must be given to the child; for instance, the historical part. Moreover, the mental vision will also be carried beyond the visible local boundaries, as in irrigation, natural or artificial, and here again *communication* of knowledge is indicated.

But I am wandering from my subject, which was the art and manner of instruction in local geography. Let us take the nearest way thereto.

Teaching of local geography is not easy. On the part of the teacher it requires skillful preparation, great circumspection and patience; on the part of the pupil open eyes and close observation, even outside the school-room. Moreover, properly studied, it requires many excursions outside the walls of the school house, since, as many of the objects cannot be brought into the school-room, we must, therefore, seek them where they are situated.

Again, the pupil is to be energetic and persistent in searching out and observing for himself alone, this or that object. In this direction there are many well-adapted exercises of which I will point out but a few:

1. Exercises in *observation;* for example, the direction of a weather-vane.

2. Exercises in *examination;* for example, the different statues in a city.

3. Exercises in *discovery;* for example, where there are reservoirs in a city, or springs or brooks in a country place; on what building there are weather-vanes, and what they look like.

4. Exercises in *measuring* and *counting;* for example, to measure by steps the length of a street, or width of a road, comparing distances thus measured between any two places.

These and similar problems the pupil can work out for himself, and thereby he is forced to be observing and attentive when the teacher is not by him.

It is best to give exercises of this kind directly before the conversational lesson on the selected subject, so that the pupil may come prepared beforehand.

What means of aid have you in local geography teaching, and how do you use them? Perhaps a plenty of charts and maps. But these are the very aids which are most likely to be misused. For example, it is a misuse of them when they are used from the commencement, and when instead of the actual locality only a picture of it is viewed, so that the scholar becomes less acquainted with the locality itself than with the map of it. One cannot be too strongly warned against this danger. Let this be your ruling principle: *First the object, then the picture,* so that the object will explain the picture, and not the picture the object. These auxiliary means mentioned should only be used after the perception has been gained from the reality, and after the scholar himself has drawn little sketches of it. He gains, too, so much the more pleasure from seeing, instead of his own imperfect attempt, something more perfect. In this way he comes to a right understanding of geographical maps in general, which is a great point gained for his future geographical studies.

I would also draw attention to another valuable auxiliary which, so far as I know, has never been called to aid. I mean photographs of the various important buildings, monuments and statues of a city. Every child should procure the ones selected, and, after having seen the actual object, the photograph will be a material aid to his faculty of perception. Of course it would become a necessity that such photographs could be bought at a very low price.

Having given these general principles I pass on to the treatment of the subject, dividing it into two parts, viz.: the *primary steps*, coming under the province of object teaching, and the *final steps*, being Exclusive Local Geography. I have also to add that the primary steps can by no means be kept to any strict systematic order. The children have to observe separate objects as they present themselves; very often opportunity is given for comparison between two objects or phenomena. Nevertheless, although the children can follow no system in their observations, the teacher must have his own plan of instruction or he will soon find himself overwhelmed.

II. SPECIAL LOCAL GEOGRAPHY.

PRIMARY STEPS IN LOCAL GEOGRAPHY, belonging to the department of sense perception instruction.

The School-room.—(Terms of distinction—below, before, behind, right, left.) Four walls, one floor, one ceiling. The walls *stand*, the floor and ceiling *lie*—ceiling above, floor below. Right wall, left wall, front wall, back wall. Four corners. Of equal size are ceiling and floor; right wall and left wall; front wall and back wall. In which side are there windows? How many? In which doors? What stands on the floor of the school-room? What hangs on the walls? How long and how wide is the school-room? (To be measured by steps.) How many seats, desks, tables stand in the room? (Drawing of the floor, or of one of the walls on the blackboard before the class.) Observation, description and comparison of various things in the school-room; for example, of doors, windows, table, slate, chalk, sponge, etc. Make drawings of some of them. In observing the windows the children are to look out and tell what they see.

The School-yard.—There is a yard to our school-house. On which side, or how many sides is it? It is long and wide. How long and how wide? (Measured by steps.) What surrounds it? What can you see standing or lying in the yard? What is the use of what you see? How do you go from the school-room into the yard? How many steps of stairs from the hall into the yard?

The Sun.—Does the sun shine to-day? Where is the sun? Does it always stand still in the same place? What does it do

in the morning? In the evening? When is the sunshine warmest? How does the sun look? Does it shine every day? When does it not shine? Where does it rise—set? Point where with your hand. Say aloud, morning, *east*—evening, *west*. Where is the sun at noon? Point where. We say that direction is towards the *south*. In what direction does the sun rise—set—stand at midday? The sun moves in the sky from east to west. It does not move in a straight line, but in a curved line. (Drawing.) The direction opposite the south is called *north*. Repeat the four points of direction.

The Moon.—Can we see the sun in the sky at night? Then we see the moon and the stars. Do we see them every night? How does the moon look? Does the moon also give warmth? Does it also rise in the east and set in the west? (Told to look at it in the evening.) Comparison between the sun and the moon.

The Stars.—When do we see the stars? Can we see them every evening? Do they look as large as the sun or the moon? How many stars are there in the sky? Are they all equally bright? Do they give warmth like the sun? Are there stars in the sky by day also?

Water.—(For a rainy day.) Look out of doors. It is raining. The rain is water. It falls in drops. How many drops are there? Where do they come from? Do the drops always remain on the ground? The rain wets. What, for example? Does it rain every day? Has it rained much to-day? How long is it going to rain? Look into the street—yard. You see the water standing there in several places; those are puddles; we will see if they are still there this afternoon or to-morrow. They are there no longer; what has become of them? We also have water here in the room; what is it in? Who brought it? Where was it brought from? (Something more about the well, pump, or water-pipes.) A glass filled with water. Properties of water observed: fluid, transparent, colorless, tasteless, odorless. Can the water be made warm or hot? How? Can't it also be made solid? What is it then called? When does water become ice? Water falls from the sky as rain; it rises out of the earth; but it also flows on the surface of the earth. Do you know any large body of water near us?

Clouds.—Look out of doors. What is the sky covered with? How do the clouds look? Are they solid? Towards what direction are they moving? When it rains, snows, or hails, are there always clouds in the sky? Rain does not fall from all clouds. What is the color of the clouds we now see? What other colors do we sometimes see in clouds? What colors do we usually see in the clouds at sunrise and sunset?

Wind.—How do we perceive the wind? Can we see it or hear it? What is the wind? Strike the air with your handkerchief, you feel a blowing—that is wind. East, north, south, west wind. What do we call a very strong wind?

Rainbows.—You see a rainbow in the skies. It is of different-colored stripes. There are seven of these: a red, an orange, a yellow, a green, an indigo, and a violet stripe. The red is on one edge, the violet on the other edge, and the green in the middle of the rainbow. When our face is toward the rainbow, the sun is behind us. We can sometimes see the color of the rainbow in a water-bottle, in the water of a fountain, or in water falling over a mill-wheel. (The teacher will find it an advantage to have strips of paper of the seven colors, and exercise the children in arraying them in proper order; the child thus early acquires a correct knowledge of colors.)

The School house.—When possible, observe all four walls from without. How many windows? How many rows, one above the other? (Stories.) What is the shape of the windows? Of what are the walls made? The roof? How many chimneys? Is there a door in the side of the building? What else is there on this side? On which side does the sun shine in the morning? In the afternoon? On which side does it shine little or not at all? East, west, north, south sides. What is within the school-house? Hall, class-rooms, etc. How many class-rooms? Who can tell me of any other school-house in the city or town?

Classes and Teachers in the School.—What is the name of our school? You are all in one class, which class is this? How many classes are there in the whole school? This room is our class-room. Is it on the ground floor or first story—in the second story, or third? Comparison may be made between the school-house and some neighboring building.

The People who Build Houses, and what Materials They Must

Have.—In building a house the following people work : masons, carpenters, locksmiths, glaziers, roofers, plasterers. What do the masons do ? The carpenters ? etc. What do the masons use ? The joiners? What parts of the house are built of stone? brick ? wood ?

Snowy Day in Winter.—Look out of doors. What is falling from the sky ? That is snow, and we say it falls. Does the snow fall in drops like water ? It falls in flakes. It is white. It remains lying on the ground. When the weather becomes warmer the snow melts ; then it becomes water. Why does it snow in Winter and not in Summer ? What do boys do with snow ? Can we ride on the snow ? How can we ride on the snow ?

Ice.—It is very cold out-of-doors ; it has frozen. The water is covered with a sheet of ice. Does the ice fall from the sky like snow ? Why does not water become ice in Summer ?

People who Furnish us with Food.—Butchers with meat, bakers with bread, millers with flour, gardeners with vegetables and fruit, grocers with sugar, salt, coffee, etc., fishermen with fish, brewers with beer, etc. Particulars in regard to each ; for example, where does the butcher get his meat ? From the cattle that are slaughtered. What animals are slaughtered? Where are they slaughtered ? Where in the city do we find meats for sale ? Where are vegetables raised ? Where sold ? Name vegetables you have seen in the market. Conclusion : What food do we obtain from animals—what from plants ?

People who Furnish us with Clothing.—Who provides you with your clothing ? Do your parents make it themselves ? Of whom do they get your clothing ? To make clothing we must first have something of which to make it. Of what do we make clothing ? In what kind of stores do we buy materials to make clothing ? Name some of the stores. We can also buy many kinds of clothes ready-made ; name such garments. Clothing must be kept clean ; shirts, stockings, etc., often washed. Laundries.

Care of Health.—Who of you has ever been sick ? Whom did your parents send for to make you well again ? What did the doctor do when he came ? Where did the doctor come from ? Where is there an apothecary ? When you were sick

you staid in the house and your parents took care of you ; but is there no place for people who are sick and have no home to stay in, and no one to take care of them ? Have you ever seen a hospital ? where? Do you know of any other hospitals?

Trade.—Many people who buy things to sell, have stores ; these people are called merchants, traders, storekeepers. Tell me some stores near where you live. (Signs, firms.) What do we buy in a grocery store ? In a clothing store ? To buy we must have money. Coins and paper money. (Show different coins.) Of what metals are coins made ? What is the building called where money is made? Did you ever see a mint? where? what kind of a building ? What banks do. What brokers do.

Street where the school is situated.—On what street is our school? It is long and wide ; how many steps wide ? How long ? Is it straight or somewhat crooked ? Is it level or somewhat hilly ? (The general direction in which it runs.) Is it planked or paved ? How many stones does it take to pave a street ? They cannot be counted. The middle of the street is higher than the sides ; why ? The water runs off in the gutters; does it run up or down ? On both sides of the street are narrow walks for people ; these are called sidewalks. In the streets we meet carriages, men and animals ; what kinds of animals ? On both sides of the street stand houses ; there are two rows of them ; see if there is anything else to be seen in the street. Posts—on top of the posts, lanterns—within the lanterns, lights. The streets are lighted at night ; why ? We find trap-doors of wood or iron in the streets ; what are they ? Conclusion : ask individual scholars, on what street they live, through what streets they come to school.

Different kinds of Carriages seen on the streets.—Names of different vehicles. Difference between a car and a carriage. Name different parts of a carriage.

Public Squares or Parks.—Where is the nearest public square? How many steps long is it ? What is in the square ? What is it for? (Drawing.) Other squares or parks.

A Ranch or Farm.—A ranch or farm is a large place, and on it we find many things ; wagons, wheelbarrows, plows, harrows. We also see many animals—hens, ducks, geese, etc., There are also several buildings. There is a dwelling house ; there is

another building with large doors and no windows; that is a barn where hay and grain are kept; sometimes there are places for the horses and cattle in the barn; sometimes there are sheds near for them. There are cows and calves, oxen, horses and swine. What are all these animals for? The cows are to give milk, the horses to draw the wagon and the plough, the oxen and the swine to be fattened for slaughter. The oxen must also draw the plow, harrow, etc. There are also many people on a ranch; boys, girls and laborers. What do they do? They have to feed the cattle, to milk the cows; (what is done with the milk, who takes care of it, and what we call the place where it is kept;), they have to manure the fields, to plough the ground, to sow seed, to harvest and thresh. We call such people *farmers* and their work *farming* or *cultivating the soil.*

Fields.—Plow-land, tilled land or fields is land that is plowed every year once or several times. The land is plowed with a plow; the plow cuts the surface of the earth into narrow strips and turns them over; the cuts or hollows made are called *furrows.* The earth must not only be plowed but harrowed also; the harrow covers the seed with earth, and breaks up the clods. The seed is sown either with the hand or with a sowing-machine. The seed that is sown is not to lie in the earth but to spring up, grow and bear fruit. The field is manured in order to make the seed vigorous and healthy. Kinds of seed sown. Harvesting, season and manure.

Neighboring Bodies of Water, (rivers, bays, lakes. etc.,) Bridges, etc. A River.—The *name.* The water of a river flows in a hollow channel of earth; and this hollow is called the *bed* of the river; the borders of this bed, that is the land at each side of the river, are called the *banks* or *shores* of the river. The river is as *wide* as the distance from one of the banks to the other; if there is a bridge across the river we can tell how wide the river is by measuring the bridge. The river is also *deep* as well as wide; its depth is the distance from the surface of the water to the ground below. The ground at the bottom of the river is uneven, like the ground around us, so that in some places it comes nearer to the surface of the water than in other places; of course the water is not so deep in such places and these are called *shallows* or *shallow water;* places where the water is so

shallow that we can wade across or cross with a horse, are called *fords*. Sometimes the bed of the river is so hilly that the tops of these little hills rise above the surface of the water; these hill tops are entirely surrounded by water and are called *islands*. A river has not always the same width and depth; when there is but little or no rain for a long time the river is narrow, more shallow and the water more clear; in heavy rains or after heavy rains the river becomes swollen, that is it becomes wider and deeper; it rises higher in its bed and the water becomes less clear. Sometimes the bed of the river becomes so full that it cannot contain all the water of the river; the water then rises above the banks and flows over the land; we then say the river has overflowed its banks, or has flooded the country. When the weather in winter is cold enough, the surface of the water becomes frozen and forms ice; sometimes the ice is so thick that people can walk and skate upon it; sometimes the water freezes to so great a depth that the ice becomes thick and strong enough to bear heavy loaded teams. What kind of animals live in the river? What use do we make of the water in the river?

Shipping, (vessels and boats.)—There are several kinds of vessels in which we can travel on the water. (Examples. A general description of the shape and different parts of a vessel, but no details.) People whose business it is to sail vessels on the water are called sailors, boatmen, etc. The forces which move vessels are the currents of water, steam, horses, wind and the human hand. The means through which the forces work are steam engines, ropes, sails, masts. Different ways of traveling. Which is the easiest—quickest—slowest—why? Ships are usually loaded with different things, viz. wood, stone, coal, wheat, etc. This is called the *cargo* of the ship. A *wharf* is a place on the shore or bank of a body of water, to which vessels can be made fast, while they lade and unlade their cargoes. Places near the water where vessels are built or repaired are called *ship yards*.

Bridges, (railroad and river bridges.)—For what purpose are bridges? Of what built? Difference between a railroad bridge and one made for teams and foot passengers. How supported from below. How ships pass through a river bridge.

A Railroad.—A railroad is a road built of iron rails; there are two rows of these rails, and they are at all points equally distant; these two rows of iron rails are called the track. The carriages which roll on these tracks are called *cars;* several cars joined together are called a *train;* at the head of a train is a steam carriage which we call the *locomotive.* The locomotive moves by means of steam from boiling water, and when the locomotive moves it draws the train with it. There are *passenger* trains and *freight* trains; express trains and accommodation trains. (Explain difference.)

Journey on a railroad—Who of you has ever made a railroad journey. What railroads did you travel on? Let us imagine or play that we are going on such a journey. Some one may tell me what railroad we will go on. Way to the railroad station. Where? Buying tickets. Waiting in depot. Signal for taking our seats in the car. People whose business it is to take care of the train: conductor, brakeman, engineer, fireman; their duties. Signal for starting. Motion of train first slow, gradually faster. How to stop train. Places where a train stops called *stations.*

Herewith I close the chapter on material for local geography in its primary steps, that is for the first two school years; I herein lay claim, however, neither to a complete selection of subjects, nor to an exhaustive treatment of them; I have rather sought to indicate the method of handling them. In regard to changes in the sky and atmosphere, I would add that these are not merely to be observed once but many times in the course, the time being selected according to the actual presence of the phenomena to be observed. In addition to the four main points of the compass, the second year may include four intermediate points, north-east, etc., observing the difference in direction, summer and winter, of the point of the sun's rising and setting.

BOXING the ears is an inexcusable brutality; many a child has been made deaf for life by it, because as the "drum of the ear" is a membrane, as thin as paper, stretching like a curtain just inside the external entrance of the ear, there is nothing but air just behind it, and any violent concussion is liable to rend it in two, and the "hearing" is destroyed forever, because the sense of hearing is caused by the vibrations of this drum or "tympanum."

[*For the California Teacher.*]

VOICE AND VOWELS.

BY PROFESSOR KNOWLTON.

Voice is sounding breath. More exactly it is a free outflow of sounding breath, shaped, but not shut off, by the surrounding organs.

It is *possible*, though not easy, to make voice of *incoming* breath. Hardly once in a thousand times, however, will the foregoing definition fail.

The voice may or may not have tone or pitch. If it has, it is a complete voice; if not, it is a whisper, which is, simply, a toneless voice.

A vowel is a single voice-sound—a voice-element. It usually has tone or pitch, but may be uttered without—that is whispered. The sound represented by *a* in *arm* is such a sound; that of *e* in *eve* is another.

A vowel may occur at the beginning, in the middle, or at the end of a word or a syllable. To designate those positions respectively we call the vowel *initial*, *medial* or *final*.

A vowel may form a whole word, as in *I*, *aye*, *oh*, *owe*, *ah*, and others.

The number of simple English vowels are thirteen. They are:

1. a as in *a*rm.
2. a as in p*a*ss.
3. a as in *a*dd.
4. a as in *a*ll.
5. o as in *o*rb.
6. o as in *o*dd.
7. e as in *e*ve.
8. i in *i*nn.
9. oo in c*oo*l.
10. oo as in l*oo*k.
11. e as in h*e*r.
12. e as in p*e*t.
13. u as in f*u*ll.

All these are plain except Nos. 2 and 6.

The proper sound of No. 2 lies about midway between No. 1 and No. 3. It comes in such words as *cast*, *last*, *fast*, *mast*, etc., in which if we sound *a* like *a* in *arm*, the pronunciation becomes broad and coarse; while, if we sound it like *a* in *add*, the vowel becomes too flat and thin. The true sound lies—where the truth often does—between the two extremes.

The three sounds, Nos. 1, 2 and 3, are like in kind; they

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differ in degree or duration. Nos. 4, 5 and 6 resemble each other similarly. Besides these two triplets, No. 7 with No. 8, No. 9 with 10, form couplets of similar or cognate vowels.

If any one's ear fails to satisfactorily distinguish between No. 9 and 10, let his mouth carefully pronounce the sentence :

"The *boot* fits the foot." The right sound of *oo* in boot is No. 9 ; in foot it is No. 10. Exchange the two sounds and pronounce the sentence :

"The boot fits the *foot*." If that doesn't show the doubter the difference, he wouldn't, probably, see any difference if Bacon's famous little sentence :

"Reading makes a *full* man," were pronounced, "Reading makes a *fool* man."

A diphthong is *two* sounds. It is really a compound or serial sound, in which the second simple sound immediately follows the first, and more or less closely blends with it. If each plainly keeps at its own pure sound, the two make an *open* or *improper* diphthong. The sounds of *o* and *i* in *oil*, illustrate. Here *o* sounds as in *odd*, and *i* as in *inn*. Each presents its own simple sound, so that the word *oil* really contains no new vowel sound at all, nor has it a diphthong in any other sense than that in which *any* single sound, vowel or consonant, immediately following another, helps the former to make a diphthong.

If the two simple sounds closely blend into one compound or serial souud, in which each simple sound so modifies the other as to make it sensibly differ from its usual single sound, the two form a *close* or *proper* diphthong. As such a sound naturally comes next to a single sound or element, the word *proximate* is a good name for it.

The word "*out*" contains such a close dipthong or proximate sound.

Space hardly permits the exact analysis of the diphthong vowels.

These double vowels, serials or diphthongs, are seven :

1. a as in *ale*.
2. i as in *ice*.
3. o as in *old*.
4. u as in *use*.
5. ai as in *air*.
6. oi as in *oil*.
7. ou as in *out*.

Thus the whole number of English vowels, single and double, monophthongs and diphthongs, elements and proximates, is *twenty*. Keeping the proper position of body, shoulders back neck straight, belt out, lungs full, and especially remembering the "thinking a gape," the yawning position for the throat, practice these twenty sounds ten times through, five times in tone voice.

The five degrees should be *very low*, *low*, *middle pitch*, *high* and *very high*; apply each of these five degrees to both whisper and voice, and we have ten degrees of pitch.

If you have some knowledge of vocal music or have a good instrument to guide, a melodeon or small organ is the best, you can utter the whole twenty sounds on every tone of the scale and as far above or below the usual range or register as you can go. As far as you can, think of syllables in which each sound shall be *first*, then *midst*, then *last*, and specially practice such, in order.

After the five, or ten, degrees of pitch, take five of *force*, *very soft*, *soft*, *medium*, *loud*, and *very loud*.

Remember that *high* and *loud* are by no means the same. Do not confound pitch and force.

Then practice different *rates* upon them. Go through them *very slowly*, *slowly*, *medium rate*, *fast* and *very fast*. Do not however, try to utter them rapidly until you have first made sure that you have them accurately.

In these departments, length, pitch and power, music and elocution are identical or so nearly so that all careful practice in either correspondingly helps the other.

The vowel sounds are the flesh and fat which cover the harsher, more unyielding skeleton of consonant elements. The sweetness and the melody of language lie in its vowels. They voice the first faint lisp of infancy and the latest gasp of dying age. The beauty and the expressiveness which make speech so fascinating and music so enchanting, dwell mainly in its vowels.

Exact and vigorous practice upon them not only refines and beautifies the speech but also enlargens the lungs, increases the strength, confirms health and prolongs life.

FORESTS AND FRUIT-GROWING.

Fruit has beeome a necessary of life—a great variety of fruit indeed, and a great deal of it; and this will beeome more and more the ease with the increase of intelligenee and thrift. The great abundance of most kinds of fruit for the last two or three years may eause us to feel a security, which is not well grounded, with regard to the eonditions of elimate neeessary to the unfailing production of fruit. Only within a few years past have there been seasons when the fruit erop was very light, and not at all adequate to the demand. One of the eauses of this is the eaprieiousness of the seasons, and this caprieiousnes, I believe, is becoming eonstantly greater as the eountry grows older.

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The water absorbs heat during the summer, whieh it slowly gives off on the approaeh of eold weather, warming the atmosphere in its vieinity, and preventing the oeeurrenee of early frosts in the fall along the shore-border from five to ten miles wide. This gives the wood and buds a chance to mature thoroughly, so that they will endure a harder freeze in the winter than wood and buds whieh were suddenly stopped in the course of maturing by an early frost in the fall. In the spring the waters warm more slowly than the land, and the atmosphere thus chilled along this same shore-belt keeps back vegetation and fruit buds so as greatly to lessen the danger from late frosts; and what may seem to be a eontradietion, but is nevertheless true, spring frosts are usually lighter within than they are outside this shore-belt.

These several advantages from the proximity of a eonsiderable body of water are well understood. There is another, however, that may be of some value. During the heated term of summer there is always a cool breeze from the water whieh modifies the temperature of the hottest part of the day along this otherwise favored border of shore-land, and may act benefieially in various ways: first, by promoting a more aetive eireulation of air among the leaves and young branches, thereby favoring the healthy action of the organic surfaees—henee, greater immunity from blight and mildew in this region; seeondly, by affording proteetion against the injury to whieh growing fruit is liable from

excessive heat ; thirdly, by maintaining a greater uniformity of heat between night and day. The experiments of Köppen have shown that change of temperature alone is deleterious to vegetable growth ; and we may, perhaps, justly infer that uniformity of temperature, when it lies at or near that degree which is most favorable to healthy vegetable activity, is a desirable point in a fruit-growing climate for the even, early, and better maturing of fruit.

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In a country quite destitute of timber the surface would dry off much more quickly, in consequence of the free sweep afforded to the winds. The water from rains would also pass over the surface more freely into the brooks, and be thus lost to vegetation. The spongy surface of the forest absorbs a larger proportion of rain than the open fields, and thus retains it in the soil as a source from which the neighboring streams receive a continual supply, while its evaporation from the surface and its transpiration through the leaves of the trees afford moisture to the atmosphere.

The moisture thus imparted to the atmosphere mitigates the severity of a drought in various ways : First, by lessening evaporation from the surface, as this is accelerated by a dry atmosphere, and retarded by a moist one ; secondly, by affording to the soil a greater proportion of moisture for condensation, when the surface cools at night. Thirdly, by affording moisture for direct absorption by the leaves. This is a disputed point among men of science ; but the late researches of Cailletet promise a reconciliation of the conflicting views, as usual, by showing that both were wrong and both were right. He found that, when a plant was abundantly supplied with moisture in the soil, the leaves never absorb ; but that they do absorb whenever the soil is deficient in moisture, and the leaves begin to droop.

Hence, there might be evidence of drought in a country without forests, while there were no such evidences in a country sufficiently guarded by forests, though the amount of rain had been the same in both.

These conditions are not altogether without value in regard to fruit-growing. It is true that grapes do best in rather a dry

elimate ; but most kinds of fruit require eonsiderable moisture, especially at the time of transplanting, and also when the fruit is maturing. In affording some mitigation of the extreme efforts of dry weather, forests may be regarded as benefie.ai influenee on the growing of most fruits.

Of far greater eoncern to the fruit-interests of any locality is the influence of woodland on temperature. On this subject there is quite a general unanimity of opinion. Certain forms of the evidenee are so familiar that the eonvietion produeed is general. Every one, who has travelled through woodlands and open fields during cold weather, has readily pereeived how much warmer was the atmosphere of the wood than that of the field. It is said that engineers on our railroads find that it requires less fuel to keep steam in passing through a long stretch of woodland (Marsh). But the warming influence of the forests has been subjected to more rigid tests than these. Boussingault proved that, within several parallells of the equator on either side, the temperature of eleared land is about two degrees higher than that which is covered with forest. But we are more direetly eoneerned with results in our temperate elimate.

The researehes of Beequerel, Krutsch, and Berger, had appeared to prove, first, that a wooded region would have a eooler summer and a warmer winter than a region almost destitute of woods ; and, secondly, that during the daytime the temperature of the atmosphere in the forest would always be lower, and during the night always higher, than in the open field ; the difference between the diurnal maximum and minimum of the forests being less than that of the field ; in other words, the diurnal temperature is more uniform.

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Influence of Forests on Winter Temperature.—In the wintertime, the simplest relations of the forest to temperature prevail. During this season of the year, when the wind passes into the north and beeomes colder, the forest warms it ; when it passes into the south and beeomes warmer, the forest eools it. During winter the forest plays the *role* of a bad eonduetor, and acts as an equalizer of temperature.

Influence of Forests on Summer Temperature.—In summer the case is not so simple, owing to evaporation from the surface,

transpiration through the leaves, and radiation from them. At this season of the year the atmosphere in the forests is usually warmer during the nights and colder during the day than in the open field. The night is warmer in consequence of the obstruction which the mass of foliage presents to radiation from the surface beneath it; the day is cooler in consequence of the transpiration of vapor from the leaves, and the obstruction interposed between the surface and the direct rays of the sun. In the summer, as well as in the winter, the forest usually acts as an equalizer of the temperature of the atmosphere.

While, however, this is usually the case, there are exceptions. During nights when it is calm, radiation from the leaves of the trees may cool particles of air, which, descending toward the surface, form just before daybreak a stratum of the atmosphere below, which is colder than if the region had been destitute of trees. It is within the experience of most cultivators of the soil that frosts sometimes strike hardest near a wood.

To the fact that under certain circumstances a forest may cause frost in the fields near by, we may add the qualification that this can only occur in the case of white frosts, and that whenever there is motion of the atmosphere, and the wind a cold one, the influence of the forest is always protective. An orchard sheltered by a wood may escape unhurt, while another in the same neighborhood not so protected may suffer the loss of its entire crop. This is believed to be not a very uncommon occurrence in the case of peaches.

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The Count in favor of Forests.—1. Usually equalizing the temperature between night and day during the summer season—uniformity of temperature being a condition which is favorable to vegetable development. 2. Equalizing the effects of rainfall by storing up the waters to be given off gradually to the streams and the atmosphere, thus favoring the development of most kinds of fruit. 3. Imparting moisture to the atmosphere by transpiration through the leaves, and thus profiting the fields in various ways during a drought. This moisture may also contribute to the warmth of the atmosphere when warmth is beneficial. 4. Intercepting the sweep of the winds, and lessening the mechanical injury to plants and trees, and weakening the coöp-

eration for mischief of wind and cold. As a screen for protection against the wind, trees are not without appreciation, and it is generally understood that, even if they imparted no warmth to a cold wind passing through them, the mechanical resistance they afford prevents it from taking the warmth so readily out of vines, trees, and the soil. 5. Cooling the warm winds of Winter and Spring, thereby keeping back vegetation out of the way of late Spring frosts. 6. Warming the cold winds in Winter. The last three on the list being by far the most important; and by their coöperation they might very easily, and often do, make the difference, at a critical time, of a crop or no crop, as this often depends on a degree or two of temperature.

It will be readily perceived that all the better influences of wooded lands are of very much the same character as the influence of a body of water. It is when these two classes of conditions meet in the same locality that general fruit-growing has its best chances of success.—*Popular Science Monthly.*

LANGUAGE.

I.

The mother tongue must be made the center of instruction, for it is the earliest and most perfect medium of communication between mind and mind. Its words are the exponents of thoughts. The relation between language and mind is most intimate and reciprocal. In language, mind manifests itself in all its shadings; and by means of language the mind is reached, effected, and disciplined. Its structure, its manner of preparing ideas, its logic, its treasure of thoughts, found in its classical literature, afford us the noblest and most effective means of cultivating and developing the mind and heart.

By the language used in our daily intercourse, or under any other circumstances, we unconsciously reveal the kind of education we have received. We reveal if our mind has been fertilized with noble ideas; if our understanding and judgment have been correctly developed; if our imagination is rich in

ethical and chaste images. In short, character and heart disclose themselves in language, through language, by language.

But language is not the result of momentary growth. It is the result of a nation's genius, a nation's successful life. It developed in the same manner as the nation developed and grew in ideas.

This growth, this organism, cannot be acquired by a child in any other manner than the nation acquired it; for he repeats, in a measure, the same various stages of development As his mind grows and his experience enlarges, so will his language grow and enlarge. Any attempt, therefore, to fill his mind with disconnected words, not conveying ideas suitable to be digested and assimilated, will prove futile and a waste of time, will stupify and produce emptiness, haughtiness and self-conceit—and, what is still more lamentable, will perfectly close all avenues to the heart and understanding. They will not root and not fertilize—and yet, in instruction, that is true only which fertilizes, says Goethe.

The history of mankind shows clearly and conclusively that words were only created when there was a demand for them. Only when new ideas were acquired, new words were created to express them. From these facts we deduce an important principle in didactics, a principle strictly based upon the historical development of language, namely: first, the idea, and then the sign.

According to the preceding statements, we plainly see that language consists of two principle elements or factors—the logical, and the phonetic or euphonic. It also follows from the same statements that the logical element precedes, develops first in the child, as it did in mankind, and consequently should be taught first. A child begins to speak, uses language when it has acquired some ideas—when it feels that irresistible desire to make known to the outer world what transpires in his inner.

We must, further, distinguish in the acquirement of any study two very distinct values—that of knowledge, and that of discipline. Facts, not understood and simply committed to memory, must be regarded as knowledge, merely; but when they were acquired they did not discipline the mind, add nothing to our mental growth. They are like grains of wheat fallen on bare

rocks—they do not germinate, take root and grow. But, if the mind shall be disciplined by acquiring knowledge, if it shall be expanded, it is necessary to make instruction methodical. A sound and true method, however, must be based upon principles derived from the historic development of the branch of study in question.

It is, therefore, a great mistake that we attempt to teach systems, instead of trying to develop the mind systematically to arrive at a system. All systems are the slow and protracted results of the acquiring and investigating mind; they are the results of a long series of progressive steps in development. To the violation of these truths we owe our failures in teaching Grammar and the Natural Sciences. We thought we were able to set aside the natural order of things, head it off, as it were, by substituting cramming for development.

CONFERENCE OF HIGH SCHOOL TEACHERS.

In accordance with a call of the State Superintendent there convened on the afternoon of December 26th, at the Cosmopolitan Building, San Francisco, a meeting to devise means to bring the public schools into closer relations with the State University.

The following were present: President Gilman, Regent Dwinelle, and Professors Kellogg, Welcker, Carr, Pioda and Bunnel, of the University; Mr. Bolander, State Superintendent; Mr. Lucky, of the Normal School; John Swett, Theo. Bradley, A. L. Mann and J. M. Sibley, of San Francisco; F. M. Campbell, J. A. McChesney and E. R. Sill, of Oakland; C. B. Towle and W. Crowhurst, Vallejo; J. Henning, Grass Valley; A. G. Drake, Marysville; J. W. Anderson, Petaluma; E. P. Howe, Sacramento.

The meeting was called to order by Superintendent Bolander, and organized by the election of President Gilman, Chairman, and E. R. Sill, Secretary. Mr. Bolander then briefly stated the object of the meeting to be the unifying of the whole system of public education. It was upon all hands agreed that it was intended to be one harmonious whole. From the commencement

of the primary school to the completion of the University course, there should be but the successive steps in one orderly system. It was felt throughout the State that the step between the High School and the University must be made as easy and natural as that from any other grade to the next higher. The object of this gathering of teachers was to consult, in an informal way, upon means for the perfection of this idea. They must bring into harmonious action that which is already, in theory, a complete and organic whole.

President Gilman then delivered the following address:

I have often thought that it was an excellent provision in the educational system of California, that the Superintendent of Public Instruction is an ex-officio member of the Board of Regents of the State University, for thus the idea is expressed that the system is one from the common school to the University. It is the natural consequence of this provision that we are assembled here to-day, as a company of teachers representing the high schools and the University, to consider whether the relations between these two portions of the system can be improved. We are fortunate in being brought together by an officer of the State (Mr. Bolander) who heartily appreciates both phases of the problem—the possibilities of the preparatory schools, the desirabilities of the University. With the hope of promoting an understanding between us all, and thus of contributing to the welfare of California, I ask for a few moments in which to lay before you the following considerations. Having been for many years officially concerned with the administration of public schools, as well as of a college, I hope to be considered as always belonging to both branches of the service, and to be generously trusted. In the heartiest and most explicit terms I assure the Superintendent of Instruction, and the teachers of the State, that the officers of the University, both Regents and Professors, appreciate the importance of a vital connection between the public schools and the University, and will do all they can to promote the entire system. By public utterances and private influence, we stand ready to maintain that the education of the people of California, general and special, in the elements of knowledge and in its most advanced

researches, is the ever present necessity of the State, in order that morality may be strengthened, wealth increased, and all the advantages secured of a well organized society. Without further preamble let me proceed to the subject for which we were called together.

1. The people of this State by repeated acts of legislation, by generous appropriations from their own treasury, and by the acceptance of certain Congressional grants, have irrevocably determined that their system of public instruction shall not be a system for the poor alone, but shall be for all the children of the State; and that, beginning with A, B, C, it shall extend so far upward and outward as the realms of knowledge. This noble purpose implies that there will be no break between one stage and another of instruction—primary, secondary and superior—but that each will prepare the way for that which is higher. There should be no jealousy or rivalry between different parts of the system, for each is helpful to all the others. If the University is higher than the common schools, it should be higher as the dome is higher than the wall on which it rests, and which it crowns with the shelter of its heavenly roof, and not as the balloon is higher, vaguely floating round, the wonder of a gaping crowd.

2. While the system is one, the wants it is to meet are manifold. Some scholars can only get the rudiments of an education; others can spend all their years from infancy to manhood or womanhood under teachers in schools. Some have all the cooperation that could be desired from parents—all the helps that money can buy; while others acquire their training in the face of poverty, and without any help at home. Some are dull, others are brilliant. Some are bound to prepare themselves for practical life, which will begin the moment they leave school; and others can expect to devote their days to liberal pursuits and elegant culture. This diversity makes it much harder to devise a scheme of duty than would be the case if all scholars were enrolled for an equal time, or were studying for the same purpose; but in all our plans we may not forget that each successive step in the system is to many their last step. In every class of the primary school, the intermediate school, the grammar school, the high school and the University, there are those

who are to graduate just there. I would not be unmindful of this while urging the adoption of a system which constantly suggests, points out, and prepares for the highest grade of scholarship.

3. Another difficulty arises from the difference between what is possible in a dense population, or what is possible in a sparse. The bay counties of the State, which include so large a part of the wealth and population, are able to maintain school arrangements very different from those in the remote interior.

4. Throughout all higher educational establishments the present tendency is to recognize two distinct paths—the one chiefly mathematical, scientific and modern. Harvard College offers two distinct examination schedules for those who would be admitted to the Freshman class; so does Yale College in its Academic department, and its Sheffield School; so does the University of California. This division is regarded by many with regret—they would prefer to have one course, both in the high school and in the college; but the diversity is inevitable. Nobody can learn everything—and even as early as the high school the divergence of paths must be permitted; but all regret at the necessity is as vain as the regret at the brevity of life, or the emptiness of human expectations. We may as well admit that, if this is the day of universities, it is the day of diversities likewise. We must make our paths accordingly.

In accordance with these considerations, the University of California, by the provisions of the organic Act, and by the action of its regents and faculty, recognizes the importance of diversity in unity, and aims to give superior education to classes of persons whose wants are very different. Its arrangements, when perfected, will include—and already, to a considerable extent, do include—scientific and linguistic courses of study, the latter being nearly equivalent to the traditional colleges, the former being co-ordinate with the modern schools of science and technology. The terms of admission to the two courses vary, being less comprehensive for the mathematical and scientific courses than for the classical course—a discrepancy that is to be regretted, and can be removed. In the University the scientific courses, after a period spent chiefly in fundamental studies advantageous in all specialties, diverge in the direction

of engineering, chemistry, agriculture, and other modern branches. The linguistic and historical studies may likewise diverge, and be chiefly ancient or chiefly modern. Thus it is that the University is aiming to meet the requirements of these two classes—those who prefer a technical and scientific training, and those who adhere to the familiar and established classical culture. No arrangements are yet perfected for medical and legal instruction, nor for post-graduate work ; but these subjects are not lost sight of.

6. The requirements for admission, as established provisionally, are as follows :

The College of Arts.—Candidate for admission to the Fourth Class, in either of the Colleges of Arts, must pass a satisfactory examination in the following studies, viz.:

Higher Arithmetic, in all its branches, including the extraction of square and cube roots, and the metric system of weights and measures.

Algebra, to Quadratic Equations.

Geometry, first four books, (Davies' Legendre, or Loomis.)

English Grammar, in all its branches.

Geography.

History of the United States.

The College of Letters.—Candidates for admission to the Fourth Class in the College of Letters, in addition to the foregoing requirements, must pass a satisfactory examination in the following studies, viz.:

Latin Grammar.

Cæsar, four books.

Virgil, six books of Æneid.

Cicero, six orations.

Greek Grammar.

Xenophen's Anabasis, three books.

Both these schedules are much lower than the authorities of the University prefer to establish—that for the scientific course especially so. Doubtless at an early day the standard will be raised by requiring preparation in other studies than those just enumerated ; but at present the Faculty find it difficult to exact the amount of preparation prescribed by this standard. They are afraid if they ask for more they will get less, and will

"tail to connect" with their base of supplies. In their opinion it is not good engineering for the locomotive to part from the train, nor on the other hand, to expect that the train will draw the locomotive.

Those who have had most to do with the examination of young men, complain in Oakland, as they do in Cambridge and New Haven, that the candidates for admission are not thoroughly prepared, even in what are called the ordinary English branches. While some schools show an exceptional skill—and it would be easy to name them—in preparing boys for college, the relative number of scholars thus prepared is quite small in comparison with the number of those who come in self-taught, or taught in schools which are not really preparatory to college work.

7. When we pass from the actual requirements now laid down, to those we should prescribe at some future day, I trust not distant, there are two principles which seem to me should be recognized:

(*a.*) The scientific courses should not be, nor appear to be, inferior to the literary classes. It is not half trained engineers, inaccurate chemists, blundering geologists, ignorant farmers, that the State is called upon to educate; but men who are learned, trustworthy, accurate, skillful in these modern professions. Such proficiency can only be acquired by hard labor, long protracted studies, habits of research, acquaintance with the work of this and other countries. If the parents, the teachers, the pupils, or the public encourage the notion that such a preparation for life is easy to acquire, they cherish a delusion and snare. All the prizes of life are won by hard work. Science requires just as hard study, and just as much study as language; and he is really degrading science who admits that it can be acquired by skimming. I hope, therefore, the day may soon come when admission to the mathematical and scientific courses of the University will require just as much preparation (though different) as the classical course. I take it for granted that the admission to both the scientific and classical departments should be as difficult as in the colleges of the East. The proposed increased requirements should be formally agreed upon and announced a considerable time in ad-

vance, so that teachers and pupils may be governed in their work.

(*b.*) While thus exacting high attainments or rigid examinations from those who enter the University as candidates for degrees, I would for a long time to come admit as scholars who are not candidates for a degree, those who desire to become proficient in certain specialties. This is possible, especially in the Chemical Laboratory, or in the School of Agriculture. But we should beware lest we commend these courses to those who are too indolent to take the full course. If we are not careful we shall have a colony called Botany Bay, those not tolerated elsewhere. There should be a respectable, honorable place for diligent and worthy students to pursue special studies, such as they may select, without their being grouped with a company of negligent and incompetent scholars.

The conclusion of all these statements is this: That the University will adhere for the present to its published standard of admission, applying it rigidly and fairly to all candidates for a degree, and looking forward with an eager hope to a time not distant when, first, the requirements for admission to the mathematical and scientific courses of studies may be made as extended as those to the classical; and second, when the requirements for both shall be equal to those of the best American institutions. The honor of California is at stake in this.

Both before and after this occurs, students not candidates for a degree may be admitted to special instructions in chemistry, agriculture, etc., not as a means of escape from regular courses, but only as a method of getting in part of what they cannot get complete, or of supplementing in the University what they have acquired elsewhere.

After an interval of silence, in which everybody modestly waited for some one else to open the discussion, Professor Carr remarked, that in order to have a basis for discussion, he would offer the following: *Resolved*, That the standard for admission to the University is too low.

Mr. McChesney offered a motion, seconded by Prof. Pioda, that one modern language be added to the requirements for admission to the scientific courses of the University.

Professor Pioda remarked that the importance to every educated man of an acquaintance with at least one modern language, was now everywhere admitted. It was time, therefore, to commence the system, which some time must be adopted, of requiring preparatory training in some modern language, before entering the University.

Mr. Bolander suggested that it would save time to consider each of the University courses separately. The most urgent question was in regard to the classical course—whether the schools can do all the work now required of them. He, therefore, moved to lay the present matter on the table, and take up the consideration of the relation of the high schools to the College of Letters. The motion prevailed.

The printed circular of the University was here read, stating the requirements for admission to be as given above in the President's opening address.

Mr. Anderson said that in his opinion students should be examined only on the general principles of Latin and Greek. Time was wasted by pupils in going over the minute details of the grammars of these languages. The English grammar, itself, furnished almost enough of those general principles. The teachers should take up the classic authors with their pupils, reading with them, giving them very little grammar, or hardly even a dictionary. The object should be to read these authors easily. The pupils should commence with them in the beginning, getting the meaning of the words, to a considerable extent, from the context, and getting as much general knowledge of the work as the teacher could give them. In this way he thought that time would be saved.

Prof. Kellogg said that he had no doubt that in teaching Latin and Greek much time had often been wasted in going over the minutiæ of each language by itself, as if it stood alone, having no connecting relations with other languages. The truth was that each language had its fibres interwoven with all the others. By keeping the attention awake to these relationships, their grammars could be made easy and interesting. It was certainly impossible to read the classic authors intelligently, or obtain from them that culture which was their best fruit, without a close study of those principal facts of the language which make

up its grammar. The requirements of the University were certainly as small as could be asked of any institution that pretended to be a University. With regard to Latin we should probably all agree ; but as to Greek there was perhaps a difference of opinion. A misapprehension had gone abroad as to the attitude of the University toward the study of Greek. There had been a temporary arrangement, this year, by which pupils who had been partly fitted in Greek, were assisted to make up the requirement in order to enter the next class in Greek. It was merely a hospital class, established to meet the present stress, and it was not likely to be adopted another year. The instructors had more work than they could do, without that extra burden. With regard to the classical curriculum in the College of Letters he felt that the degree of Bachelor of Arts meant a certain culture, definite in quality and amount, the world over; and that to give that degree for a different quality or less amount of culture would bring our University into disrepute. The A. B. was a trade-mark on which we did not want to infringe. The higher degree of A. M. was somewhat different. That had no such definite implication, and might well be given, after three years of satisfactory attainment, to those who had taken some such degree as Bachelor of Philosophy (Ph. B.) at graduation. If the College of Letters should fail to maintain its high standard for the classical course, we should lose our best young men. If they cannot get what they want here, they will surely go elsewhere. He called on the teachers to give their pupils the good old training in Latin and Greek. So far were they from intending to lower their standard, they expected soon to raise it to a point nearer what it ought to be.

Mr. Anderson said there were but few teachers, outside of the large cities, who could teach the classics. Even if they could, people would complain, as they now do in some quarters, that the teacher's time is taken from the mass of the scholars by eight or ten scholars who want Latin and Greek. It was an injustice to the people at large. If parents want to fit their boys for the College of Letters, they ought to do it outside of the High Schools. For his part, in his school of forty pupils, he did not propose to take his time from thirty-four scholars for the benefit of six. He did not mean to waste his time on the rig-

marole of Latin. He wished to inquire what had became of the Fifth Class.

Mr. Legget thought the High Schools should give the boys a thorough training in Latin and Greek to whatever extent the College of Letters should require. It would be an excellent plan for the University to furnish each year to the schools throughout the State, the questions used at its last examination for admission in order that teachers might see exactly what their pupils would be required to do.

Mr. Campbell thought there must in some way be a closing-up of the gap between the High Schools and the University. It was only a question whether the University should reach down, or the schools reach up. Could we not manage in some way so that time might be saved in preparing to enter? Under the present system but few can be got to stay in school long enough to prepare themselves. Only a small fraction of grammar school pupils complete the High School course, and of those fewer still go to the University. Could we not save time by dropping out Greek? The Fifth Class had died by verdict of the public. Could not the University go on, as it had done before this year, supplying the deficiency of Greek to its candidates?

Mr. Bradley thought there seemed a lack of any common ground on which to discuss these matters. Considering how few of the public school children ever expected to go farther than the High School, it would be an injustice to the great majority if the University were the only point arrived at in preparing a High School course. He moved that a committee be appointed to report a schedule of studies for two courses in the High Schools; one preparatory to the University, the other for those who had no intention of going farther. He knew that no programme they might adopt could be carried out all over the State. He therefore proposed that the committee should only report some general outline, which might be filled up by suggestions from any quarter, and varied according to the wants of any locality.

Dr. Carr wished the committee to bear in mind, in preparing their report, that the University, with its series of schools and colleges, was intended for the whole people. It was not established to benefit the few, but the many. The requirements for

admission, to which the High Schools were to adapt themselves, had to be such that the people should not be excluded from the enjoyment of those advantages which of right belong to them.

Mr. Sill wished the committee might not only report two separate courses, but one single course, covering the needs of both classes of pupils. He believed that the course best adapted to prepare a boy for further culture in the University, was exactly fitted to the needs of the boy who could not go there. That which best fitted the mind for broader development in the colleges, was the best possible also for him whose next step must be the college of active life. The first object of the school, as of the College of Letters, was not to make engineers, lawyers, merchants, or so on, but to make complete men, ready for the thorough mastery of any pursuit. Whatever course would give a boy the fullest development of all his faculties, was the one needed by every pupil in the High School. To the boy who could go no farther, it gave the best culture we could offer him; and the boy who was going on needed all of that, in order to get the greatest good from the University.

If the grammar schools would do the work they pretended to, there was no difficulty in giving all the required Greek and Latin, in the three years of the High School, with generous slices of the higher English studies besides.

Mr. Campbell said we could only afford to give what is absolutely necessary for those who are to enter the University. If they were to have a thorough course in chemistry, Natural Phisosophy, etc., in the University, they did not need it before going there. There really should be three courses: one scientific, one classical and one general.

Mr. Bradley would be glad to see a course which should include both in one. There had been such a course in operation for several years, in the San Francisco High School, which gives a boy a good English Education, and at the same time fits him for college. Professors of the University had said to him that a student is always the better for having had a preliminary training in physics, etc.

Mr. McChesney said that, except for the Latin and Greek, the University required only a very little more than the Grammar Schools taught. For admmission to our High Schools we re-

quired grammar, geography, United States history and arithmetic. In addition to this the University only demanded a little algebra and a little geometry. We could surely teach this and something more in the three years of the High School course. The question was not how little knowledge might get a person through a University. We fail to turn out the right sort of men and women if we confined their preparation to a little geometry and algebra. They are all the better students and all the broader men for knowing something of rhetoric, history and the sciences besides. He thought it would be well to have students know something about their own mother-tongue before entering college. In order to a thorough mastery of English, the study of it from the standpoint of some other language is desirable. It should be remembered that we were talking of High Schools; not lower schools that had usurped the name. It was to be expected that it would take some culture and some money to produce such schools.

Prof. Welcker wished to reiterate Dr. Carr's caution that we should keep in mind the relation sustained by the University to the State. It was established for the benefit of the whole people. We all agreed on what state of things would be desirable, but the question was, what is practicable? They would be very glad to raise the standard of requirements for admission, but to do so at present would exclude a large part of the State. The High Schools were not merely to fit for the University, and each might do as much, outside of that, as its individual circumstances allowed.

Prof. Kellogg thought the High Schools might have the same course for all pupils till the last year, when it would seem advisable to provide two parallel tracks, one of which should lead to the University.

Mr. Bolander said it was impossible for the High Schools to connect with every college of the University. Pupils must soon begin to pursue different tracks, according as they were going to one college or another. He would be glad to have the study of Latin begin as early as the First Grade of the Grammar School. The ideal course of study throughout the school system would make each grade a rounded and complete whole, so far as it went. This ideal was not yet attainable. He would

have the course so arranged that each pupil, on entering the High School, should decide which path he would pursue, and shape his studies accordingly.

Mr. Bradley explained that the classical course was separate from the other in the San Francisco High School.

Mr. Leggett feared, that if the meeting adopted some ponderous course of study for San Francisco and Oakland, it would frighten off all country High Schools from trying to fit their pupils for the University. That institution must cast out its net and draw in the talent from every hamlet in the State. The particular course for each school must be left to the individual teacher's good sense. The University must be kept before the ambition of teachers and scholars. The condition of our schools could only be raised from above. Get the University right, and its good influence would permeate downward through the whole public school system. The trouble through the State was that people did not know how easy it was to fit their children for the University.

On Mr. McChesney's motion, Mr. Bradley was appointed a committee to prepare a course of study for the High Schools, and report the same to-morrow.

The meeting then adjourned to the next morning at 10 o' clock.

There was a full attendance the next day, Prof. Gilman occupying the Chair, as before. Mr. Bradley made the following report :

First—That the minimum course of study for a High School should be such as will prepare a student for the scientific department of the State University.

Second.—That wherever practicable it is highly desirable that provision be made for instruction in Latin and Greek to the extent demanded for admission to the State University.

Third.—That students entering the State University will find it to their advantage to bring as large an acquaintance with the English language and literature, French and German, physics, chemistry and general history as their facilities for instruction will permit.

The report was taken up *seriatim*. The first recommendation caused considerable discussion.

Mr. McChesney objected to sanctioning the establishment of

so-called "High Schools," which would teach only a little geometry and algebra in addition to what was given in the grammar schools. It was unjust to those pupils who needed and demanded much more than this.

Mr. Towle favored the recommendation. There were many large schools, where the languages could not be taught, yet pupils wished to go to the University. In his own town they had such facilities, but there are may places throughout the State where they could not or would not give more than the requirements for the scientific course of the University.

Mr. Mann thought it unfortunate for such a recommendation to go abroad. The only particular in which it rose above a grammar school course was the fragment of algebra and geometry. There were few teachers holding First Grade Certificates, who could not give more than that. Even a *minimum* course should include more.

Mr. Swett said the recommendation of the Report was the only practicable one. The time was soon coming when the applicants for admission to the Scientific Colleges would greatly outnumber those for the classical course. It was best to keep before the scholars the idea that any teacher could fit a boy for some one of the departments of the University. It would be time enough to talk about a higher standard when the Faculty of the University choose to raise it.

Mr. Sill said it was only a question of putting the right label on things. Was it best for such an assemblage of teachers to encourage people in supposing they were getting High School work when they were not? It was the business of a High School to awaken an interest in very many subjects. We could arouse in our pupils a hunger to know, which the University would satisfy, while it led them to still higher aspirations. Considering that it was the curse of our State to give great titles to small things, and to put up with unskilled work, was it not the first duty to have things called by their right names?

Mr. Bunnell agreed that it was bad to label a school too "High," unless it gave more than ordinary grammar schools. People should be encouraged to claim their right to something more than that for their children. If they pay public money they have a right to claim that better education which the real High School can give.

Prof. Carr supported the recommendation of the Report as the only one practicable. There was no system of education in this State. There were, as yet, only the fragments of one. There never would be a true system till the Normal School, the Public Schools and the University were all under the control of one Board. It should be understood that the function of the High School was to be a sort of substitute for a college, rather than to fit the University. The public schools were to do for the masses the work of general education, not special. The University came in to do the special training. What the High School was to the masses, the College of Letters was to the few. It was to give a still higher general education, preparatory to the special training of the other schools of the University. The functions of all the colleges, except the classical, was to give the people courses of instruction, which, while not neglecting discipline, should look specially to the particular pursuits they wished to engage in. If they entered the College of Letters, it would give them a still higher education than the High School, in preparation for the special training of the other colleges. The grammar schools gave nearly all that was required for entrance into the scientific or technical colleges. If we should ever get a complete system, under one governing Board, the connection of these latter with the grammar schools would be closer than with the High School. Any live teacher who had a few pupils to prepare for the University, could easily give them a chance. The public schools were doing the work of general education for the masses; the University, the special. The College of Letters merely carried the general education farther on. He had for thirty years been hearing of prejudices against High Schools; but he had never yet seen a man or woman, who, when the relation of one school to another was fairly explained, had a single objection to either High School or University. People did not realize that the influence of the University and the High School ran clear down to the lowest grades of the Primaries, and made them better schools.

The first recommendation of the Report was now put to a vote, and lost.

The following substitute was adopted:

Resolved, That the High Schools of the State and the Gram-

mar Schools, which teach the higher studies, should encourage their scholars to pursue a course of instruction which shall at least be as comprehensive as the schedule laid down, for entrance upon the scientific courses of the University.

A motion was made to amend this by the addition of one language in addition to English. After considerable discussion, the amendment was lost.

The other resolutions reported by Mr. Bradley were then unanimously adopted.

Mr. Dwinell, of the Board of Regents, responded to a call in a few hearty words. He was glad to see such a conference of teachers together. The University was the dome rising over the rest of the Public School system, and crowning the whole. It was the fixed purpose of the Regents that, when swelled to the full dimensions of its promises, it should be a place where education, in every department of human effort, should be free as air to every man a woman in California.

President Gilman expressed the warm desire of the University to get into friendly intercourse with the teachers, in order to coöperate with them in the work of free public education. He thought the State Superintendent should have the thanks of all present for bringing them together.

The Secretary was requested to prepare a report of the proceedings for the CALIFORNIA TEACHER.

The meeting then adjourned.

E. R. SILL, Sec'y.

NATURAL SCIENCES AND INDUSTRIAL EDUCATION.

TECHNICAL EDUCATIONAL IN EUROPE.—Perhaps we cannot better convey an idea of what is meant by technical education, than by exhibiting in outline the system as it is now in operation in Europe, and particularly as it has been organized for some years in the small state of Würtemberg in Germany, with a population of 1,778,000. We derive our facts from the volumne by Mr. Scott Russell. Mr. Russell gathered his facts while personally examining the workings of the system. The Würtenberg system embraces many admirable features. A Polytechnic University is situated at Stuttgart, intended for the highest

classes of professional men, civil engineers, mechanical engineers, architects, etc. There is a course for mercantile and commercial classes, and one for chemistry and its application to chemical arts and manufactures, etc. There are fifty-one professors and teachers, a chemical and a physical laboratory, mineralogical museums, modeling-rooms, mechanical workshops, rooms for drawings, a botanical garden, and an astronomical observatory. A second and more remarkable educational institution is the school for the building-trades. This school is intended for building-crafts and tradesmen, and is now one of the most remarkable and popular schools on the continent. Here lower-class builders are trained for masters, contractors of public works, etc. Plasterers, tilers, engravers, smiths, gardners, etc. are educated for foremen and masters. There are twenty-eight professors and masters. The school is crowded by those for whom it was intended, and the graduates are eagerly sought for everywhere on the continent for the superior excellence of their services. A third class of institutions are wisely situated, not in the metropolis, but in the country, and they are distributed through the districts. They are schools for country occupations and trades, and are called "agricultural and forestry establishments." There is first a great institution at Hohenheim, with twenty-one masters. It is divided into the farming school, the gardening school and special agricultural courses. It has under it three practical farming schools in three different districts, and each school has under its care 400 square miles of territory. A large brewery is attached to one of these establishments, and there are subordinate schools throughout the country. There are also winter evening schools in the villages, and the practical result is that in one year, 1868, there were 12,040 persons in 523 places, enjoying thorough agricultural instruction. Supplemental to the agricultural education of the farmers is an institution for the study of anatomy, physiology, and the training and diseases of animals. It is the veterinary college of Stuttgart. Attached are a hospital for horses, in which last year 775 animals were treated; a cattle hospital, in which 826 animals were treated; a dog hospital, in which 213 animals were treated; a smithy, in which 4,006 animals were shod. With such upper schools for technical training, there is

a complete organization of upper and lower schools leading up to them; otherwise these higher schools could not be filled with fit pupils. There are, therefore, eighty-eight colleges, each having a classical and a scientific division. In the classical division there were, in 1868, 4,565 pupils, and in the scientific, 4,734. These two divisions are again subdivided into upper and lower, called in the case of the classical division, gymnasiums and lyceums, and in the case of the scientific, *real* schools and science colleges. Below these are the elementary schools, including technical schools of the humblest kind, in which girls are taught housekeeping, and boys are trained to the simplest duties of life. It is impossible in our limited space to give any adequate view of the details of the working of these great institutions so wisely provided for the youth of the nation, extending over all the divisions of society, embracing every kind of occupation and aiding every branch of industry. The comprehensive method, the systematic development, and the admirable manner in which its details are fitted to the special aims of practical life, are the characteristics of this system of education. The rulers of the state have deemed it one of their highest duties to organize and apply a system which shall make the most of each citizen, and fit each one for the most skillfull doing of his special work in life. If a skilled workman is worth three times the value of a rude one, then Würtemberg by her educational system virtually trebles her population in the value of her industries. This system pervades the entire national education, and knows no distinction of social rank. Provision is made by which the poor boy who is compelled to work for his living shall not be deprived of technical education. Sometimes he is taught an hour before work in the morning or after work in the evening, or other hours more convenient may be found; but he is provided for, so that, even while earning his bread, he may be learning to be a skilled workman and a good citizen. The whole cost of this great national blessing is about sixty-five cents per capita of the population of Würtemberg. To enumerate the benefits of the system would require a volume. We can only notice a few results. The general character of the people is greatly improved, and the lower grades of society show a degree of refinement and

intelligence far above the same classes in England and America. Master tradesmen and employees exhibit a fellow-feeling, growing out of the fact that they have gone through the same schools and the same training. Antagonism between workmen and employees—a threatening evil in these days—is rare in Würtemberg. The technical schools attract numerous strangers, who often equal the native pupils in numbers; and this is no small benefit. Work of all kinds, public and private, whether in mercantile pursuits, farming, building, engineering, or in any other line, is well done, saving immense waste and loss to private and public interests. And, finally, all the industrial pursuits of the nation are far in advance of those of other countries. Scott Russell says England will require many years of technical education to reach the point Germany has already gained. Railways, for example, are built more cheaply and far better in Germany than in England, because the pupils of Germany's industrial and technical schools have been the builders. The eyes of the world have in late years been fixed on Prussia on account of the wonderful success of her arms—a success due to the same cause, viz., the application of technical education. Behind every musket is an intelligent, highly-trained mind.—*New York Evening Post.*

PLAIN DIRECTIONS FOR COLLECTING ALGÆ.—Daniel C. Eaton Professor of Botany in Yale College, prints the following notes for the use of those persons in any part of the American Continent who are willing to help the cause of Natural History by making collections of sea-weeds and sea-mosses, but are yet uninformed as to the modes of collecting and preparing their specimens:

Of Where, When and How to Collect.—After a heavy gale blowing on the coast, almost any beach of sea, gulf, or bay, will be covered with Algæ, often in great quantities, coarse, fine, black, red and green, in entangled masses. Such heaps should be carefully examined as soon as possible after their formation, or else the more delicate kinds will be quickly destroyed by decay. At extreme low water the sea will leave tide-pools among the rocks, or sometimes in the sand, and by wading in these pools many sorts may be obtained. The rock-pools with clear water and some shade from the rocks will generally yield the finest specimens. Old buoys, piles, wrecks, &c., afford good nesting places for sea weeds. In quiet weather a small dredge

worked from a boat, in water from one to fifteen fathoms deep, will often bring up varieties not to be obtained in any other way. A strong fishing-line with coarse hooks will bring them up from the bottom also. A seine left a day or two in the sea, as a pound-net for instance, will catch many algæ which were floating in the water. The collector ought always to have a light hand-net—a bag of mosquito-netting stretched on a brass hoop of 8-10 inches diameter, and secured to a good six-foot staff, is very convenient—a light basket containing several quart or pint preserve-jars, a few smaller wide-mouth jars, and perhaps a pair of brass forceps and a pocket magnifier. The coarser sorts may be put in the basket, and the finer ones in the jars, keeping the latter filled with clean sea-water. It is well to wash each specimen clean when first obtained, so that the collection taken home may be in good order. Very rare or delicate specimens should be put separately into the smaller bottles. Care should be taken to get the *whole* plant, if not too large, and if it be very large, to cut out for preservation the root or "holdfast," and portions of the stem and other parts of the plant. The most careful collectors will note also the kind of place where the plant was obtained, whether on rocks, piles, floating, or growing on coarser varieties.

On Preserving the Coarser Sorts.—These should be shaken a little, loosened or spread out a little, but never washed in fresh water, and then dried in the air. The best way is to stretch a cord in some windy, and if convenient, *shady* place, and to hang the specimens on the cord. The flat-leaved forms, however, dry to the best advantage if spread out on coarse papers and laid on a board. They should be protected from the dew at night, or brought under cover. In this way a day or two will dry almost any sea-weeds, and, as the salt remains in them, they will keep for years, and may be easily soaked out and mounted on paper at any time. This rough-dried collection should be packed in boxes, and if the specimens pack too closely, twigs may be placed among them, if not closely enough, a slight sprinkling will make them so pliable as to pack nicely. Such sea-weeds, however unsightly they may be in this condition, may eventually be made into excellent specimens. Corallines and other stony algæ may be wrapped up in paper, and will keep so indefinitely.

Of Mounting the More Delicate Sorts on Paper.—Dr. Harvey has so well described this process, that the following description of it is taken from one of his works on algæ. "The collector should have at hand a couple of large flat white dishes, filled with (fresh) water, in one of which the specimens may be washed, pruned and freed from parasites, and singly introduced into the other when sufficiently cleaned. When the specimen is floated in the second dish, a piece of white paper of proportionate size is to be introduced under it, the branches finely displayed with

a pointed instrument, a porcupine's quill or a small forceps, and the superfluous parts removed. The paper, with the specimen so displayed upon it, is then to be carefully withdrawn from the water, placed between two sheets of soft paper, and subjected to pressure like other plants. Thin calico (white muslin) rags are useful to lay immediately over the specimens, between them and the soaking paper, as the cloth is less likely to adhere to their surface than paper, and if it does adhere, is more readily removed without injury. After the first six hours, and again once every day till the specimens are fully dry, the wet paper must be changed, and then it will be found, in most cases, that the specimen has adhered to the white paper on which it was displayed. The smaller kinds will be sufficiently dry in forty-eight hours. A very little practice will make the process easy, and the trouble will be repaid by the beauty and interest of the collections which may soon be formed." To the above it may be added that the firmer red varieties will improve in color for several hours steeping in fresh water, but many of the very most delicate must be mounted from salt water only, else the color, and sometimes even the structure of the plant, will be destroyed. The best, as well as the cheapest kind of press is two good pine boards about twelve by eighteen inches, and half a dozen bricks separately tied up in wrapping paper. Too great a pressure leaves a print of the cloth on the specimens, and renders it also more difficult to revive a fragment for microscopic examination For ladies' albums algæ are often mounted on fine Bristol-board or large wedding cards, and some very beautiful specimens are pressed between layers of white flannel—half-cotton is best—without the use of muslin-rags or soaking paper. A solution of one part crystalized carbolic acid, ten parts pure glycerine, and forty parts water, will preserve algæ a long time, and such specimens are even better for study with the microscope than the specimens on paper.

It remains only to add that the writer of these notes will receive with thanks any collections, large or small, from all parts of the world, and will endeavor to name all American specimens sent to him, if so desired.

SUGGESTION.—In our September number, we published a short article on the usefulness of the Monterey Cypress ; and we explained at the same time how farmers might raise their own trees from seeds. We shall proceed to explain, how such seedlings should be treated in case the season is not favorable for final transplantation. When the seedlings have attained a size from six to ten inches, prepare near the house, or some other place, where water for irrigation is near at hand, a bed or more,

if necessary. Spade the soil and pulverize it well. Having done this, procure boards the length of the bed and from six to eight inches wide. These boards are sunk edgewise, vertically into the soil, nearly even with its surface, and about eight or ten inches apart. At the upper and lower end, they should be joined also by boards, preventing the water from flowing off. Between this sunken frame, the seedlings should be planted eight or ten inches apart. The advantages of such a treatment are obvious. First, the seedlings may be watered whenever necessary. Second, whenever the season is favorable, and the soil has been well prepared, they may be taken up with perfect safety; for the roots, having been prevented from spreading by the boards on either side, have multiplied and form a dense cluster, holding tenaciously the soil. By removing the first board and running a sharp spade under the tree, cutting its tap-root at a reasonable depth, and running the spade vertically down on either side of it, it may be lifted up without the least danger of having the soil break away from its lifted roots. Treating evergreens in this manner, we need not lose any; and may transplant them, whenever the season is favorable. They may remain three years in such a constructed bed.

NEW ROAD INTO YOSEMITE VALLEY.—The new road will begin at Hazel Green, 23 miles above Coulterville, and will pursue an Easterly route along the sides of the Merced Canyon to the Bridal Veil Falls, a distance of but 18 miles. The route then will be by C. P. R. R. cars to Merced, reaching it at 11, P. M. Tourists will stop all night at Merced in the large Railroad Hotel, then they will take stage next morning early and will pass through Snellings, Coulterville and the Bower Cave, and reach the new grove of mammoth trees at about 7 o'clock in the evening. Here tourists will stop all night in a large hotel. This grove of big trees contains fifty specimens of *sequoia gigantia*. Half of these trees have a circumference of 40 to 75 feet, and are 250 to 325 feet high. This new grove is called the Merced Big Tree Grove. From it to the hotel in the valley it is but 16 miles, or a three hours drive by stage. The worst hardship of the Yosemite trip—the horseback journey—will, therefore, this year come to an end.

ELECTION OF OFFICERS.—The California Academy of Science elected the following officers for the ensuing year: President, Professor George Davidson; Vice-President, John Hewston, Jr.; Treasurer, Elisha Brooks; Secretary, Henry G. Hanks; Recording Secretary, C. G. Yale; Director of the Museum, H. G. Bloom; Trustees, Robert E. C. Stearns, D. D. Colton, T. P. Madden, Oliver Eldridge; Librarian, Dr. C. N. Ellinwood.

DEPARTMENT OF PUBLIC INSTRUCTION.

CONTRIBUTORS who do not see their articles appear at the expected time, must bear with us in patience. We have received so many articles, that in order to be able to print some of them which have been on hand for months, we have considerably enlarged the present number of the TEACHER. But even then we have still enough material on hand for at least the next four numbers.

COUNTY SUPERINTENDENTS, in ordering blanks, will please specify *how many* of each kind they need. Teachers writing on their own business, or asking for blanks, reports, etc., must send stamps for return postage. Examination questions are printed only for the use of County Boards of Examination, and not for general distribution. School officers must apply to their respective County Superintendents for all blanks, etc.

THE first edition of the new School Law is already exhausted. Enough copies were printed to supply each District with a copy, and to furnish each County Superintendent with ten copies for office use. As soon as the State Board of Education has met, a second edition will be printed, containing as appendices the Constitutions of the United States and of this State, course of studies, form of blanks, etc.

IF ANY Tax Collector attempts to retain as fees any portion of the school moneys collected by him, the County Superintendent will find the penalty prescribed in section seven hundred and seventy-two of the Penal Code. Poll taxes are not to be classed as school moneys.

AT the next quarterly examination, beginning the first Wednesday in March, applicants for certificates will be required to pass an examination in Natural History. The examination will be restricted to questions in Botany, and will be based upon Miss Youman's First Book of Botany.

THE SCHOOL LAW, in sections seventeen hundred and forty-eight and seventeen hundred and seventy-two, specifies the studies in which applicants for an Educational Diploma, or for a State Certificate of the first or second grade, must be examined. But the law does not specify the studies in which applicants for a third grade State or County Certificate shall be examined. In accordance with the provisions of section fifteen hundred and twenty-one, subdivision two, the State Board of Education has ordered that the examination for a third grade State or County Certificate shall be the same as provided by law for a second grade County Certificate. Applicants for Educational Diplomas, for State certificates of the first and second grade, and for first grade County Certificates, must be examined in the following studies, with the scale of credits attached :

Arithmetic	100	Natural History	50
Mental Arithmetic (oral)	25	Reading	50
Grammar	100	Orthography	50
Oral Grammar	25	Defining (Word Analysis)	25
Geography	100	Methods of Teaching	50
History	50	Composition	25
Algebra	50	Penmanship	25
Physiology	50	Vocal Music	25
Natural Philosophy	50	Drawing	25

Applicants for third grade State Certificates, and County Certificates of the second or third grade, must be examined in the following studies, with the scale of credits attached:

Arithmetic	100	Reading	50
Mental Arithmetic	25	Methods of Teaching	50
Grammar	100	Physiology	50
Oral Grammar	25	Natural History	50
History of the United States	50	Composition	25
Geography	100	Penmanship	25
Spelling	50	Drawing	25
Defining (Word Analysis)	25	Vocal Music	25
			775

Attention is drawn to the fact that *no extra credits of any kind* are any longer allowed by law, and that no examination in School Law and the Constitution of the United States is required, although questions in the latter study will be given in connection with the History of the United States.

THE State Board of Education has established the following scale of percentages: For Educational Diplomas, ninety per cent.; for first grade State Certificates, eighty-five per cent.; for second grade State, eighty per cent.; for third grade State, seventy-five per cent. For County Certificates the *minimum* percentages are: For first grade, eighty per cent.; for second grade, seventy-five per cent.; for third grade seventy per cent. In other words, County Boards of Examination cannot grant Certificates upon a *lower* percentage than the one fixed by the State Board of Education, as given above, though any County Board may raise the percentage of any or all grades.

THE State Board of Examination holds no examinations, but leaves this work to the County Boards of Examination. An applicant for a State Certificate must pass his examination before some County Board, and have his examination papers forwarded to the State Board of Examination, who re-examine the paper and grant a State Certificate of a grade corresponding to the percentage reached. For the benefit of all concerned we herewith give a synopsis of the Rules of the State Board of Examination, so far as they relate to applications for State Certificates upon county examinations: 1st. The examination questions are sent *sealed* from this office, and are not to be opened by the County Superintendent until the regular meeting of the County Board of Examination, and in presence of at least one member of the Board other than the County Superintendent. 2d. The examination must be held on the day appointed by law, *viz.*: The first Wednesday in March, June, September, or December, as the case may be. No special examinations will be considered by the State Board. 3d. The papers must be examined, credited, summed up and forwarded to to the State Board within *fifteen days after the examination has been held.* 4th. The members of the County Board must certify to the following facts: That the applicant bears a good moral character, and has been successful in teaching. That the examination questions were opened in the presence of the County Board. 5th. Candidates for Educational Diplomas must produce satisfactory evidence of at least five years' successful experience in teaching; must have held first grade State Certificates at least one year, and must have obtained, on examination, ninety per cent., unless a graduate of a State Normal School; and, also, must be fully endorsed as successful teachers by the Superintendents of the counties in which they have taught. 6th. Applicants for

Life Diplomas, in order to be recommended by the State Board of Examination to the State Board of Education, must produce evidence of ten years' successful experience in teaching; they must have held a State Educational Diploma at least one year, and, during that time, must have taught school, or held the office of State, County, or City Superintendent, and must be recommended by some teacher of acknowledged ability, and by the Superintendents of the counties in which they have taught.

As soon as the State Printer can print them, new County Certificate blanks, and new Record Books of County Boards of Examination will be issued. We shall furnish also blanks on which to transmit to the State Board of Examination the credits obtained by applicants for State Certificates.

THE question has been asked if the State Board of Examination will grant State Certificates upon city examinations. Certainly, if City Boards agree to use the examination questions issued by the State Board, and comply with the rules prescribed for County Boards.

NOT a single correct County Superintendent's Report was received for 1872! If County Superintendents would only realize for one moment what a showing of carelessness, ignorance and dereliction of duty they thereby make! This is strong language, but it is not half strong enough. There are a few County Superintendents whose errors are excusable; but in the majority of cases the very excuses offered by the Superintendents for their shortcomings, throw but into stronger relief the laxity with which they have attended to their official duties. Only a few days ago we received a letter from a County Superintendent, informing us that the census statistics of a certain district are incorrect, and should be so and so, and not as reported by him, August 20th, 1872. Only some six months and a half were needed to discover this error, and to put us to the great trouble of altering some half a dozen tables already compiled for our next biennial report. In not a few counties the expenditures for school purposes exceed the receipts from all sources, and yet a balance is reported on hand. If such financiering is of application outside of the schools of those counties, for instance, if appliable only to our own private affairs, any recourse to "Diamond Speculation" would be an absurdity. In quite a number of districts teachers teaching at sixty or seventy dollars per month, were fully satisfied to receive a hundred or two hundred dollars at the most for eight or nine months' teaching. Most disinterested devotion to the cause of education! especially refreshing in this era of money-making. Even ugly visions of peculations have flitted through our mind, when we noticed that in several counties more than one half, sometimes nearly the whole money which *must* have been set apart from the State apportionment for the Library Fund, was not accounted for. But instead of any further complaining, we propose to explain in detail the manner of collating the statistics required to be reported by the County Superintendents. If our instruction in some cases smacks somewhat of the primary department, our answer will be that we are only trying to adapt our instruction to the comprehension of those for whose benefit we are now writing.

We shall begin with the Teacher's Report: Every Public School teacher must report to the County Superintendent whenever he ends a school term, whether this happens

at the close or in the middle of a school year; but any teacher who may be teaching any school at the close of a school year must in his or her annual report, include all the statistics for the entire school year, notwithstanding any previous report of a part of the year. A school year begins on the first of July, and ends on the thirtieth of June of the succeeding year. This law has been in force for years; and yet, to cite only one instance, a County Superintendent reports that out of a total of thirty-four districts, from fourteen districts he received no teacher's reports! Now, the law in express terms prohibits a County Superintendent from drawing a warrant for the salary of any teacher for the last month of his or her services until the report of said teacher shall have been made and *received*. Yet in the above case the delinquent teachers found no difficulty in drawing their salaries. Has that County Superintendent ever realized that for such manifest dereliction of duty he can be removed from office and held responsible on his bond for every dollar so paid out? We know that the usual excuse is that some teachers as soon as they have closed a term of school, obtain an order from their Trustees, sell the order, do not trouble themselves about making out a report, but remove to another district or county; and when the order is presented for payment the County Superintendent cannot refuse to honor it, as the party holding it bought it in good faith. But the County Superintendent *must* refuse to honor such orders; it is his duty to do so just as much as it is his duty to refuse to issue a warrant upon an order which was granted after the school moneys to the credit of the district had been exhausted. If the County Superintendent wishes to avoid all appearance of injustice, let him, through the newspapers of his county, warn all parties interested not to buy any teachers' orders unless *they are endorsed by him*. Of course the County Superintendent will withhold his endorsement unless he is satisfied that the teacher has faithfully performed his duties.

1	2	3	4	5	6	7	8	9	10	
Whole number of days attendance.....	Whole number of days absence.....	Whole number of tardinesses	Whole number Boys enrolled on Register.....	Whole number Girls enrolled on Register.....	Total number enrolled...	Average number belonging.....	Average daily attendance.....	Percentage of attendance on average number belonging.....	Number of New Pupils Entered.	
									Boys.	Girls.

On the first page of the Teacher's Report is to be given an abstract of monthly summaries, taken from the State School Register. On the reports sent out from this office during 1872, in each column a distinction was drawn between pupils between five and fifteen, and over fifteen years of age. Teachers are requested to disregard this divi-

ion, and to report the whole number of days attendance of all the pupils attending school, etc., without segregating them according as they are between five and fifteen, or over fifteen years of age. In the first column is to be entered the whole number of days attendance; in the second column the whole number of days absence; in the third, the whole number of tardinesses. For each of these three columns the total for the school term or year is to be found by addition. In the fourth, fifth and sixth columns are to be given, respectively, the whole number of boys enrolled on register, the whole number of girls enrolled on register, and the total number enrolled. The total of each of these columns for the school term or year is found not by addition, nor by averaging, but simply by putting down the *highest* number occurring in the respective columns. The total for the fourth column must correspond to the total number of boys of the tenth column, and the total of the fifth column must correspond to the total number of girls of the tenth column; and the total of the sixth column must equal the sum of the totals of the fourth and fifth columns. In the seventh column is to be given the average number belonging. The total, or rather average, for the school term or year may be found in two different ways: (1) After finding the total, divide it by the number of months school was maintained. But, generally, in averaging, teachers consider a fraction of a month as a whole month. In this case the following rule alone will give a correct answer. (2) Add the totals of columns one and two, *i. e.*, the total days attendance and the total days absence, and divide the sum by the whole number of days school was maintained during the term or year. In column eight is to be given the average daily attendance. The average for the school term or year is to be found either by averaging for the term or year, or by dividing the total days attendance by the total number of days school was maintained. In the ninth column is to be given the percentage of attendance on average number belonging. The average for the term or year is easily found by dividing the average daily attendance for the term or year by the average number belonging for the term or year. In the tenth column are to be given the number of new pupils entered. For the first month of any school term or year, all the pupils entered will be "new pupils entered;" but after the first month entries are only made as pupils enter for the first time during that school term or year. In order to facilitate the finding of the number of new pupils entered, *i. e.*, the total number enrolled (sixth column) the school register is provided, in the back part, with a "General Record," in which teachers are to enroll the pupils as they enter school for the first time during the *school year*. By leaving a blank line at the end of every month, the number of pupils entered for any month are easily found.

OF the general statistics to be given on the second page of the Teacher's Report, we shall speak only of the number of pupils in the different grades. We may remark, however, *en passant*, that, except a teacher *pays* for the CALIFORNIA TEACHER, he or she cannot answer to the question, "What journals of education have you taken?" CALIFORNIA TEACHER. We know of only one county where the Superintendent required his teachers to follow the course of studies prescribed by the State Board of Education. We have heard of counties where the Superintendents not only neglected to enforce the course of studies, but even advised teachers not to follow the course of studies. Now, the experience of teachers who have enforced the course of studies, and to the honor of the profession be it said there *are* such teachers, and the experience of the County Superintendent above mentioned, prove conclusively, (1), that it

is practicable to teach every thing required by the course of studies, and that, instead of too much, too little work is laid down; (2), that to follow a graded course of studies is of great benefit to the schools, and serves to mitigate the evils flowing from short terms and constant change of teachers. We feel ashamed that we are, so to say, compelled to give these reasons for insisting that teachers and County Superintendents follow and enforce the course of studies. We are ashamed to have to use such arguments to convince teachers that a graded course of instruction is not only possible and advantageous, but even necessary. But this is not the time to enter any further into this subject; our remarks will be deferred till the report of the committee appointed by the State Board of Education to revise the course of studies to make it conform to the requirements of the new school law, is presented. We only wish to draw the attention of County Superintendents and teachers to the fact that the law requires them, under the penalties prescribed in section seventeen hundred of the Political Code, and sections sixteen and one hundred and seventy-six of the Penal Code, to enforce the course of studies prescribed by the State Board of Education. This course prescribes nothing else than that if, for instance, a child reads in McGuffy's Third Reader, it must at the same time study Willson's Larger Speller to page sixty-four, Robinson's Progressive Primary Arithmetic, Monteith's Introduction to Geography, etc., in the manner laid down in the course. Every public school teacher *must* report in his or her report, the number of pupils in the different divisions of the different grades. And County Superintendents will be required to properly fill out the eighth page of their report, which for 1872 was left blank. County Superintendents will please distribute only those Teacher's Reports which have been sent from this office during 1872, or since.

In regard to keeping a proper record of the number of pupils in the different divisions we suggest to teachers that in that part of the register headed, "Record of Attendance, Scholarship, and Deportment," the pupils can be easily grouped according to the divisions of the course of studies; that is, let first the pupils be entered who belong to the third division, third grade; then the pupils of the second division, third grade, a few lines being left blank between the two divisions; and so on. Then the teacher will be able to tell at any time, and to report at the end of the year, the number of pupils in each division of each grade.

From what we have seen and heard, some County Superintendents neglected to properly distribute the blanks, etc., sent to them from this office. This appears to have been the case especially with regard to the "Rules and Regulations, and Course of Studies," which were printed on heavy pasteboard, and sent to the County Superintendents for distribution among the schools of their respective counties. As the new course of studies will soon be submitted, no more of the above blanks will be sent from this office.

Extracts from the Penal Code. Section 176. Every willful omission to perform any duty enjoined by law upon any public officer, or person holding any public trust or employment, where no special provision shall have been made for the punishment of such delinquency, is punishable as a misdemeanor. Section 19. Except in cases where a different punishment is prescribed by this Code, every offense declared to be a misdemeanor is punishable by imprisonment in a County Jail not exceeding six months, or by a fine not exceeding five hundred dollars, or by both. Section 661.

In addition to the penalty affixed by express terms, to every neglect or violation of official duty on the part of public officers, State, county, city, or township, where it is not so expressly provided, they may, in the discretion of the Court, be removed from office. Section 772. When an information in writing, verified by the oath of any person, is presented to the District Court, alleging that any officer within the jurisdiction of the Court has been guilty of charging and collecting illegal fees for services rendered, or to be rendered, in his office, or has refused or neglected to perform the official duties pertaining to his office, the Court must cite the party charged to appear before the Court at a time not more than ten nor less than five days from the time the information was presented, must proceed to hear in a summary manner, the information and evidence offered in support of the same, and the answer and evidence of the party informed against; and if on such hearing it appears that the charge is sustained, the Court must enter a decree that the party informed against be deprived of his office, and must enter a judgment of five hundred dollars in favor of the informer, and such costs as are allowed in civil cases.

COUNTY SUPERINTENDENTS will please read section one thousand eight hundred and forty-five of the Political Code, and comply with its provisions.

WE publish for the benefit of County Superintendents a card, written by Geo. F. Baker, Superintendent of Santa Clara County:

OFFICE OF COUNTY SUPERINTENDENT OF SCHOOLS.
SAN JOSE, Jan. 4th, 1873.

ED. MERCURY:—The opinion of Attorney-General Love, concerning the validity of Normal School Certificates, has been published. So far as he and the Principal of the Normal School are concerned, the question is entirely theoretical. It does not affect them personally. To me it is very practical; because it is made my duty, as an officer disbursing school moneys, to pass upon every certificate presented; and should I draw a warrant on an illegal or non-valid certificate I should become liable on my official bond for the amount so drawn. I have, therefore, made a very careful and thorough examination of the law in regard to these Normal School certificates, and must say, with all deference to the Attorney-General, that I have been forced to the conclusion that the Code makes the certificates no longer valid. I publish this statement to inform those who may be the holders, that I can not draw warrants for them, and that they may not enter into obligations for which they can not be paid. It is not necessary for me to state the law which has already been published, or to give the arguments in support of my position. This I can do, however, and will when necessary. If I am wrong it can be easily ascertained. Let a case be made up: a teacher holding a Normal School certificate be employed, an order given for a warrant which I shall decline to draw; and a writ of mandate asked for. Then if the courts shall declare the certificates valid, I will cheerfully acquiesce in the decision. The law, however, works no real hardship, since examinations are frequent, and holders of those certificates can apply and receive State or county certificates. If they are not willing to take the small amount of trouble necessary for this, they surely ought not to complain.

GEO. F. BAKER.

Superintendent Baker is an attorney-at-law, and has given the subject close attention. Should his position, taken in regard to this matter, be maintained by the courts, County Superintendents may be held responsible for the money paid to hold-

ers of Normal School certificates after January the first. Certificates issued on State Normal School diplomas, are not affected by this controversy.

EDITORS' TABLE.

[Mr. John Swett is the responsible Editor of this Department.]

LEGISLATION.—Would it not be a good measure to pass a law at the next session of the legislature, requiring every city having 2,000 inhabitants, to maintain a free evening school for at least six months in the year? Also, requiring cities having 5,000 inhabitants, to keep open a class in Industrial drawing for the same length of time?

DESERVES IT.—The New York City Board of Education has recently raised the Salary of Thomas Hunter, Principal of the City Normal School, to $6,500 a year. Mr. Hunter was for many years principal of a Grammar School in New York, during which time he organized a free public evening high school, the most complete in the United States, for which the city owes him a debt of gratitude. We wish there were more such teachers as Thomas Hunter, and more Boards of Education as liberal as that of the City of New York. The new Normal school building in New York is just completed at a cost of $400,000.

HIGH SCHOOLS.—The Boston Board of Education six months ago, purchased a lot in the center of the city, for which it is intended to erect new High School buildings; price paid for the lot, $420,000. Boston is evidently going to ruin. Besides this lot notion, they are bankrupting the city by paying their School Superintendent $6,000 a year, to do nothing but ride around in a buggy furnished him by the overburdened tax-payers. We predict that the historic New Zealander will soon stand on the top of Bunker Hill Monument, etc., etc.,

ADMISSION TO THE STATE UNIVERSITY.—A recent meeting of University Professors and High School Principals was held in San Francisco. The only thing accomplished was the fact that pleasant personal relations were established among the University Professors and the High School Teachers. The standard of admission into the College of Letters, is generally well known, to wit, a certain amount of Latin and Greek. It is not so generally understood that boys and girls can enter the scientific department without a knowledge of the ancient languages. The standard for admission into the College of Science is 1st. a fair knowledge of the common English branches, Arithmetic, Grammar, Geography and History, 2nd. Geometry, four books, Algebra, to Quadratics. There ought to be organized at once small advanced classes in at least twenty-five schools that we have in mind, for the purpose of affording the sons of farmers and mechanics and miners, the opportunity, in their home schools, of fitting for the University. By means of these classes the scientific course of the University can be made to connect with the common schools, without any intervening High Schools.

UNTANNED PELTRY.—Richard Edwards, President of the Illinois Normal University, one of the very best Normal Schools in the United States, at the recent commencement exercises, made the following statements. "Our diploma is only awarded after a long-continued, laborious mastery of a certain amount of work,—a much greater amount than is usually demanded of teachers. But that diploma has no more legal force than so much untanned peltry. No county or State superintendent is directed by law to honor it by granting a certificate of any grade to its possessor. The finest scholar that ever stood upon this platform is liable, with his parchment in his hand, to be examined and rejected by some county superintendent of limited attainments. We have never asked the legislature to come to our aid with an injunction upon the examining officers, directing them to count our diploma as worth something. And I have yet to see any reason for regretting this fact. I shall be sorry to see the day when our pupils shrink from any reasonable examination. And let it not be forgotten that our diploma has a value,—a value greater and more honorable than all the laws in the statute-book could impart to it. The slightest certificate from this institution has, I am often assured, a power, but it is a power that depends upon moral qualities,—upon real worth,—and not upon the compulsory provision of a legal enactment. I do not mention this for the purpose of condemning these artificial helps to pedagogic locomotion. But I desire to state the fact that the Normal University has moved thus far without them, and that it has not lacked for company on its march."

NOT EGOTISTICAL.—In the December number of the *Massachusetts Teacher*, a Boston Schoolmaster states that the Primary teachers in the Boston Schools do more and better work than the Professors of Havard College. In the name of the prophet, what tremendous labors must the Boston Schoolmasters not perform? We are morally certain that nothing on the face of the globe can equal the vigor, raciness, scholarship and discernment displayed in the marvellous and wonderfully made up book notices of the December number of the Boston Schoolmasters' Organ.

PASS HIM AROUND.—At the meeting of the State Board of Education, in December last, the Life Diploma of Nicholas Furlong was revoked, on the ground of immoral conduct on the part of the holder. At a meeting of the State Board of Examination in January, the Educational Diploma of Nicholas Furlong was revoked for the same reason. Nicholas Furlong was County Superintendent of Santa Clara County, in 1869-71. He is well known as a teacher in various parts of the State. It is charged that Furlong, while teaching school in Santa Clara County, seduced under promise of marriage, one of his pupils. The fact that he fled from the State to escape an officer of justice, leaving behind him the child and its mother, is presumptive evidence of his guilt. His official conduct was a disgrace to the country, and his last act of baseness puts him out of the pale of humanity. It is reported that he is teaching a school in Salem, Oregon. The web-feet ought to present him with a coat of tar and feathers.

BLACKBOARDS.—We clip the following item from one of our Eastern exchanges: "With a cloth, dampened with kerosene oil, rub the board; all dust will cling to the cloth and the board be left in as perfect condition as when first slated. We are requested to publish this for the benefit of teachers. Mr. Peter Ketelson, the popular and efficient janitor of Illinois State Normal School, accidentally discovered the simple manner of keeping the boards in good condition. All who have seen his boards

will testify to their universal neat and workable condition. In old times we used vinegar as a convenient acid for cleaning boards, but Peter assures us that kerosene is preferable. Care must be taken to dampen the cloth but slightly."

EDUCATIONAL JOURNALS.—The *Ohio Educational Monthly* is one of the very best journals in the country; the editor puts both brains and labor into the editorial department. It is published at Columbus Ohio: Terms $1,50 a year. *The American Educational Monthly*, published by Schermerhorn, New York, $1,50 a year, is an ably conducted periodical.

POPULAR SCIENCE MONTHLY.—All teachers who take any interest in modern science ought to read this publication. The papers by Herbert Spencer, on Sociology, alone, are worth ten times the subscription price of $5,00 a year. Published by D. Appleton and Co., New York.

INSTRUCTION IN NATURAL SCIENCE.—We quote the following pertinent remarks from a recent circular by Hon. Newton Bateman, State Superintendent Public Instruction, Illinois. We commend it to the careful attention of teachers: "No greater mistake could be made than to suppose it an easy thing to prepare and present an oral lesson in Natural Science; that is, if it is done as it ought to be, and as it must be to be of any worth. The loose, immethodical, aimless and desultory school-room twaddle that too frequently passes for oral instruction can not be too strongly condemned. It is the refuge of indolence, ignorance, and presumption, and has done much to bring the whole system of object teaching into contempt. The most abject servility to text-book routine is better than such vapid, incoherent swash, for even the poorest books are constructed with some regard to order and method. I repeat, then, that, if teachers hope to succeed in oral instruction, they must mark out for themselves a clear and definite plan, in accordance with which each science, and every part of each science, shall be worked up and presented; and they must understand that nothing whatever can take the place of hard study and unflinching determination on their own part. Any thing short of this will inevitably result in confusion, discouragement, and failure. But if the course to be traversed in a given week, month or term is first determined; if this course is then subdivided into a definite number of daily steps or stages, and each of these steps or lessons is made the subject of *careful study* and *preparation*, so that it lies clear, exact and luminous in the mind of the teacher as he stands before his class; the way of that teacher will grow brighter and more pleasant, day by day, to the end. His own powers will be constantly invigorated and refreshed, and his interest daily enhanced, while the pupils will be captivated by the newness, variety and beauty of the topics presented. The caution is again reiterated, not to attempt too much at once, and never to present a topic till you fully and clearly understand it—till you can handle it and illustrate it with ease and confidence, without a text-book. The teacher, as already remarked, must seek help from text-books, works of reference, and every other available source; but the subject of each lesson must be so entirely mastered and digested beforehand that there shall be no need of any book during the recitation."

THE study of French has recently been introduced into the following additional schools in San Francisco: Lincoln Grammar, Rincon Grammar, Denman Grammar, Lincoln Primary, Market street Primary, Rincon Primary, Tehama Primary. In all these schools about four thousand children have taken up the study of French.

PERSONAL.—Charles F. True has been elected Principal of the Broadway Grammar School, San Francisco, in place of Noah W. Flood, resigned, to go into the practice of the law.....Charles T. Johns is the Principal of a flourishing public school in Gilroy.....G. E. Lighthall has been re-engaged by the Trustees of Orchard District, near San Jose. Mr. Lighthall is a teacher of rare tact and ability.....Professor Goepp has been elected teacher of Latin, Greek, French and German in the Girls' High School, in San Francisco. The girls now have an opportunity to fit for the College of Letters in the State University.....The little town of San Pablo has a well-taught public school in charge of Professor Wilson, an experienced and wide-awake teacher.....Professor Adams and Professor Brier, formerly connected with the Preparatory Department of the State University, have opened a private school in Oakland. They are both fine teachers, and we hope they will overflow with pupils. .....D. C. Stone, near the University grounds, has a flourishing school. Mr. Stone had a hard time in starting, and we are glad that his school is now an assured success. .....Professor Zimmerman has been elected teacher of German in the Hayes Valley Grammar School.....Silas A. White, Principal of the Valencia street School, committed matrimony at the beginning of the New Year.....Charles H. Allen, recently appointed as an assistant teacher in the State Normal School, is thus noticed in the Wisconsin *Journal of Education*: "Prof. C. H. Allen, the faithful, indefatigable agent of the Board of Regents of Normal Schools for the past year, has tendered his resignation, to take effect on or before September 10th, 1872. His many friends in Wisconsin will learn of this action with deep regret. He has been identified with the educational interests of the State for several years. As an Institute worker, when the Institute system was first introduced among us, as Principal of the Normal Department of the University of Wisconsin, as President of the Platteville Normal School, and as agent of the Board of Regents of Normal Schools, he has given full proof of his ability as a versatile and accomplished instructor. Efforts have been made to secure his valuable services for the Normal work of California. Our loss will be the gain of our Western friends."

OBITUARY.

Died, in San Francisco, December 13th, 1872, Mrs. Laura Mastick Cone, aged 36 years. Mrs. Cone was well known in the California School Department as one of its most efficient and successful teachers. For seven years she was Principal of the Hayes Valley School, San Francisco, where she endeared herself to many pupils and parents by her steady, conscientious firmness and genial disposition. Large-hearted and sympathetic to a fault, she won many true friends, who appreciated her high qualities. Brave, as ever a soul could be under trouble, she ever counseled and practiced the habit of "looking on the bright side of life." Mrs. Cone was born in Rockport, Ohio, and came to this State as a teacher some ten years ago. She leaves three beautiful children to mourn her early death, and bear the inheritance which only a *good mother* can leave. Few persons are laid in the grave so universally and deeply mourned over as was this truly good and noble woman. Her work being *well done*, let us hope that her rest is in Heaven. L. T. F.

SAN FRANCISCO, December 13th, 1872.

STANDING COMMITTEE.—The address of Mr. Swett, published in the November number of the TEACHER, excited an animated discussion in the National Convention. A special committee of three was appointed to report at the next general meeting, at Elmira, New York, August, 1873. This committee consists of John Swett, J. Pickard, Superintendent Schools, Chicago, and B. G. Northrop, of Connecticut.

NOTABLE PAPERS.—Among the notable papers read at the National Association were the following: Newton Bateman, on *Compulsory Education;* Walter Smith, on *Drawing;* W. F. Harris, on *Classification;* General Eaton, United States Commissioner, on *Educational Statistics.*

HANDSOME.—The city of Boston gave to the members of the National Association a reception and collation in Fanuel Hall, at a cost of $2,000. The occasion was a delightful one.

BOOK NOTICES.

KRÜSI'S DRAWING, IN FOUR BOOKS. New York: D. Appleton & Co.

We have received from the publishers the first four numbers of Krüsi's Primary Drawing Books, to which we desire to call the attention of teachers in ungraded schools in which no systematic instruction can be given in drawing. Professor Krüsi is teacher of Drawing in the Oswego Training School. These books are arranged with running copies at the head of the page, like ordinary copy books.

The copies are the only naturally arranged primary exercises we have ever seen. They are just what children delight to draw. By the use of these books, even if the teacher knows nothing about drawing, it will be possible for the child to make good progress in easy drawing lessons.

HOTZE'S FIRST LESSONS IN PHYSICS. For use in the Upper Grades of our Common Schools. St. Louis: Hendricks & Chittenden. San Francisco: Libby & Swett.

This charming little book has been lying on our table for several months. It is the work of a practical teacher, C. L. Hotze, of Cleveland, Ohio. The lessons are very simple; the experiments mentioned can be performed by extemporized apparatus, and the book is what it purports to be—a text-book for children, and not a condensed compendium of science. Every teacher in an ungraded school ought to have this little book on his desk. It is by far the best of its kind that we have come across.

FORMS OF WATER, IN CLOUDS, RAIN, RIVERS, ICE, AND GLACIERS. By Prof. John Tyndall. New York: D. Appleton & Co.

This volume is the first of the International Scientific series, published in America and England at the same time. It is really a master effort on the part of the author, well known as a good teacher of scientific truth, to popularize science. Water, in all its forms, is a subject often touched upon in our schools. We are convinced that teachers will find no other book from which so much information may be obtained in so clear, plain, and simple language. By studying carefully this small volume, teachers will not only inform themselves on an important subject, but they will learn to present a subject in logical order, and in simple, childlike language.

Industrial Drawing for Beginners. Free-Hand. Boston: J. R. Osgood & Co. For sale by A. Roman & Co., San Francisco.

We know of no book, on this subject, so well suited to our teachers and pupils, to whom, generally speaking, drawing is an entirely new subject. The author has produced a book which will largely contribute to give industrial drawing an uncontested place in our schools. He harmonizes successfully the conflicting views held by different parties on the subject. Some demand that education should aim at nothing else but direct practical results; others make discipline and training the most essential elements; and others again place artistic culture in the foreground, as the highest aim and object. In reality, these different views are not conflicting—they are naturally met by good and thorough instruction.

All anticipated fears, naturally arising from the introduction of a new study, have vanished since we became acquainted with this excellent book. It will enable teachers to instruct their classes successfully, provided they are determined to succeed, and willing to study in advance the subject to be presented. We recommend this book to all teachers in the State.

The Child's Practical Geometry. Being a Series of Elementary Problems in Drawing Plane Geometrical Figures. Compiled and adapted by Walter Smith, State Director of Art Education, Massachusetts. Boston: James R. Osgood & Co., 1872. For sale by A. Roman & Co., San Francisco.

A neat little volume of 53 pages. Practical school-men wonder at the absence of geometry in our course of studies, while algebra, of far less importance, is scarcely ever omitted. Yet a knowledge of the elementary principles of geometry is very useful to everybody—in fact, no one can do without it. But, besides their usefulness, it is also universally admitted that they are better adapted to awaken early, in the minds of our children, mathematical conceptions. Every teacher in the State should carefully examine this little volume, and acquaint himself with the principles set forth therein; and we do not doubt it, in the least, that every thoughtful teacher will agree with us that this subject should be added to the curriculum of our schools.

The following books will be noticed next month:

From A. Roman & Co., San Francisco:

A Concordance to the Constitution of the United States of America. By Chas. W. Stearns, M. D. New York: Mason, Baker & Pratt.

Common School Arithmetic on the Analytic System. By Shelton P. Sanford, A. M. Philadelphia: J. B. Lippincott & Co.

From E. Steiger, New York:

A series of Six Arithmetics. By Hermann Reffelt.

The Rational Phonetic Primer. By Dr. Ad. Douai.

The Rational First Reader. By Dr. Ad. Douai.

Manual for Teachers. By Dr. Ad. Douai.

Das Erste Buch für Schule und Haus. By Hermann Reffelt.

Das Zweite Buch für Schule und Haus. By Hermann Reffelt.

The First German Book. By Hermann Reffelt.

A Series of Four German Readers. Ahn's Method.

From the Author:

Insurance Laws of California. By J. W. Foard, Insurance Commissioner.

TO SCHOOL OFFICERS:

We ask your special attention to the following New Articles, which will be found of great value:

THE "GRAND" SCHOOL SUPPLY BOX.

The Supplies are carefully selected to meet the average wants of Schools, of the best quality, closely packed in a finely finished box with lock and key—the whole sold at a figure below the market rates of the merchandise alone. They are made in two sizes, as follows:

No. 1, $8.00—Dimensions, 17x14x9 in. | No. 2, $5.50—Dimensions, 14x14x9 in.

☞ *Send for a List of the Contents.*

The District Clerk's Record Book.

Very valuable in systematizing accounts and reports of Districts. It is ruled to show—1st. Income of the District from all sources. 2nd. All expenditures of the District. 3. Balance-sheet of the District. 4. Register of Trustees. 5th. Minutes of Trustees' meetings. Price, $1.75.

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THOMAS PRICE, M. D., Professor of Chemistry and Toxicology.
HENRY GIBBONS, Jr., M. D., Professor of Materia Medica and Therapeutics.
WM. A DOUGLASS, M. D., Demonstrator of Anatomy.

The REGULAR COURSE of Lectures in this institution commences on the first Monday in June, and continues until November.

A PRELIMINARY or WINTER COURSE commences early in January of each year, and is free to all matriculants for the regular course.

Ample CLINICAL INSTRUCTION is given at the hospitals and the College throughout the year; and the Dissecting Room and the Laboratory are open the year round.

Further information may be obtained by applying in person, or by letter, to

HENRY GIBBONS, Jr., Dean of the Faculty,
No. 26 Montgomery street, San Francisco, Cal.

THE

CALIFORNIA TEACHER.

MARCH, 1873.

VOL. X. SACRAMENTO. No. 9.

[*For the California Teacher.*]

GUIDES FOR INSTRUCTION IN LOCAL GEOGRAPHY.

[FROM THE GERMAN OF C. DIEFENBACH, BY MRS. LANE.]

II. HIGHER LOCAL GEOGRAPHY.

By means of the preceding instruction in local geography the children have not only cultivated their faculty of sense-perception, but have also acquired a knowledge of many local facts and various phenomena. In accomplishing this no systematic method has been followed, but the most favorable opportunities for observing separate phenomena, particularly such as are transitory and fleeting, have been improved. The seasons of the year have here greatly served as guides. Also, in groups of similar objects, one has been selected as a representative of all for observation and study; for example, one street, one public square, one church, one body of water, etc. In this way the child has been led to perceive and take cognizance of the essential characteristics of all such objects.

But, in its higher steps, local geography can no longer occupy itself with the consideration and description of single objects; it has rather to endeavor to bring to view order in the manifold and varied forms and phenomena in the world of home, by associating and grouping together things similar in nature. In

no other way would it be possible to accomplish the final task of local geograghy, viz., to create a complete mental picture of the locality studied, and its various features and phenomena.

Hence it now follows that instruction in local geography, in its advanced steps, must follow a fixed system, which is quite foreign to the nature of sense-perception instruction. The reviewing in the third year of much which has come under notice in the primary steps of the study, will be but more conducive to the accomplishment of this purpose.

As an object of instruction, I should divide the subject into two parts :

1. Its changing and changeable phenomena, or the department of observation.

2. The fixed and unchangeable features, the department of consideration and reflection.

The two parts of the course of instruction do not succeed one another, but rather the first mingles itself incessantly with the second, in every season of the year. It comprises, chiefly, phenomena of the sun, moon, stars and atmosphere. Let us draw nearer to this matter.

1. THE LOCALITY OF HOME IN ITS CHANGING PHENOMENA—DEPARTMENT OF OBSERVATION. a. *The Sun.*—In the heavens we see the sun by day, the moon and stars by night. Always? Do we not often see the moon by day also ? These, together, are called the heavenly bodies. The sun appears to be the largest among them ; it moves from east to west, in a curved line, bending towards the south. From morning to noon-day it ascends ; from noon to evening it descends. The highest point reached is at noon. In the sunshine all non-transparent bodies throw a shadow. Observe the shadow of such a body—your arm, for instance—at morning, noon, and evening, taking notice of its direction and length. Result : the shadow always lies in the direction opposite to the sun—in the morning toward the west, at noon toward the north, at evening toward the east. It is smallest at mid-day, largest morning and evening. From morning to noon it decreases gradually in size—from noon to evening it increases. It describes a curved line from west to east, bending toward the north, in a manner directly opposite to that of the sun. Repeat these observations and descrip-

tions frequently in the course of the year. At different times mark points of rising and setting of the sun; also, its height at mid-day. The days of Spring and Autumn, as well as of Summer and Winter, are not to be allowed to pass unnoticed. At last we shall reach this result: The sun does not always rise and set at the same points in the horizon. At the beginning of Spring and Autumn it may be said the sun rises exactly in the east, and sets exactly in the west; these points are to be marked—also the time of rising and setting. Till the beginning of Summer it rises and sets continually farther and farther toward the north. It also rises continually earlier and earlier, and sets later and later. At mid-day it ascends continually higher and higher—the shadow becomes shorter and shorter. The line it describes is always an increasing curve. From the twenty-first of June all this is reversed. On that day the sun rises furthest at the northeast, and sets furthest at the northwest. That is the day of its earliest rising and latest setting; at noon of that day it reaches its highest point in the heavens; the shadow of the body is then smallest; the curve the sun describes in the heavens, the largest. Continuing observations of this nature, during the remaining part of the year, and especially at the beginning of Winter, similar facts will be developed in regard to the sun's rising and setting, the height and length of the curve it describes, length of shadow at noonday, etc. The tropics can here be well explained. Difference of temperature at different parts of the day, and at different seasons of the year.

b. *The Moon.*—Observations of the moon are best commenced in some month of Autumn and Winter; they should be continued through the whole month, from one full moon to the next. Result: The moon also rises in the east and sets in the west, but not always in the same place. Neither does it rise every day at the same hour, but each day later. Its form is not always the same, but changes every day, sometimes growing larger, sometimes smaller; when the whole disk is lighted we say it is *full moon*; when it has decreased to one-half we call it the *last quarter*; when we cannot see it at all because it rises and sets with the sun we say it is *new moon*; when it has again increased to one-half we say it is the *first quarter*. In the last

quarter we see the *left* half lighted, in the first quarter the *right* half. How does the crescent form appear by the increasing light, how by the decreasing light? (Drawings.) When the moon is on the increase we see it evenings; on the decrease, mornings. The full moon shines the whole night. The new moon is in the heavens the whole day, but invisible. How many days from the full moon to the last quarter? From the last quarter to new moon? From the new moon to the first quarter? From the first quarter to full moon? How many, therefore, from full moon to another? (Should an eclipse of the sun or moon occur, observe and remark upon it).

c. *Observations of the Stars.*—Here we have not to go beyond a few constellations and the position of one or another planet. In the constellations no change in the position of the stars to each other, is perceptible: they remain throughout the year in the same relative position to each other. Not so with the evening-star or morning-star, which is sometimes near one constellation, sometimes near another. The morning-star or evening-star is a planet, a wandering star. The constellations best adapted to observation during the whole year are the Greater Bear and the Lesser Bear; in Winter, Orion. (Drawings.) At different times of the year both constellations to be observed. Final result: The terminal star of the straight shaft of the Lesser Bear (Urso Minor), is always in the sky, and always at the same point in the sky. It is called the Polar Star. The Greater Bear is always in the sky, but not always in the same place; it revolves around the polar star. In Winter attention to be directed to Orion. (Drawing.) After observing Orion at 7 o'clock and again at 9 o'clock—was it still in the same place at 9 o'clock? It was further to the right and the west. Had we looked again still later we should have seen it set in the west. Stars that set also rise again. Orion, like the sun and the moon, rises in the east and sets in the west. It describes an arc in the heavens, as do also many other stars. The Greater Bear and the Lesser Bear, on the contrary, as also the other stars near them, do not rise and set. They describe no arc in the heavens but a complete circle. Observe again this evening at 7 o'clock the point where Orion stands; we will look at it again in three or four weeks from now, and see if it still stands in the

same place at the same hour. It will be seen that it has gone farther towards the west. At last it will be seen to set at 7 o'clock in the evening, and still later will no more be seen at that hour. The constellation of Orion is not always in the sky at night; in Winter we see it, in Summer we do not see it. The same with many other stars. The sky of night does not display in Winter all the stars of Summer, nor in Autumn all those of Spring. Observations of Sirius and of the Pleiades, may be made together with those of Orion. If we draw a straight line through the belt of Orion, continuing it in a south-easterly direction, it will reach a large, brilliant star named Sirius; it and the stars near it, compose the constellation Canis Major. Large bright stars like Sirius are called stars of the first magnitude. The stars of the Ursa Major are less bright and hence are called stars of the second magnitude. What do you think of the stars of Orion in regard to their brightness? Westward from Orion is seen a thick cluster of stars; these are named Pleiades. We sometimes call them a flock of wild pigeons flying from the huntsman Orion; every night one of them is killed but in the evening we see another in its place. There are many other constellations in the heavens, besides those already mentioned; you will learn them hereafter.

d. *Observations of Weather.*—A weather-vane in the vicinity of the school-house, is to be used as an aid. A manuscript book is to be prepared, and for eight or ten days to be used in turn by the best scholars as a note-book. Herein is to be written each day besides the direction of the wind other phenomena also, for example, that it has rained, snowed, hailed; that the sky has been clear or cloudy; that it was warm or cold, etc. At the end of a certain time, perhaps a month, a summary is to be made; so many clear days, so many cloudy days, so many rainy days, etc; a certain wind prevailed. Result: The weather is not the same every day of the year; it changes continually; the sky is sometimes bright, sometimes cloudy; the wind has not always the same direction and force; when it comes from towards the north the weather is clear, when it veers toward the south we may expect rain. Here is opportunity for explation of the word climate, of the phrases temperate climate, healthy climate, etc. Observations of snow on mountains in

sight while there is none in the vicinity, may be made to illustrate the greater cold on highland than on lowland; also observation of smoke ascending from chimneys to be made in determining direction of the wind.

2. THE LOCALITY OF HOME IN ITS UNCHANGEABLE FEATURES.—*Department of Consideration and Reflection.*—It is impossible to make the division of the phenomena to be observed entirely distinct; the department of reflection and consideration must comprise much that is not fixed and unchangeable, for instance, animated nature as represented in the animal kingdom. Life is motion, and all motion to be learned must be observed. Since, however, the animal kingdom in its motion and activity, and the vegetable kingdom in its development, belong to a fixed locality, we therefore, in this case, combine observation with consideration and reflection. For convenience we shall select San Francisco for illustration of this department.

a. *General View of San Francisco.*—The place where we reside, where our school-house stands, is named San Francisco. San Francisco is called a city. A city is an incorporated town governed by a Mayor and a Board of Supervisors or City Council. San Francisco is situated on the west side of San Francisco Bay, directly opposite on the eastern shore is Oakland; San Francisco also lies on the southern shore of the Golden Gate; Sausalito is situated on an inlet of the opposite northern shore, and lies a little west of north from San Francisco.

b. *Streets.*—The city contains many streets. Each of you may tell me the name of some street. Market street is one of the longest and widest; its commencement is at the water's edge, about two-thirds of the distance from Meiggs' Wharf to Rincon Point, from there it extends in a straight line, its direction being northeast and southwest. Most of the streets lying north of Market street run at right angles to each other, their direction being nearly north and south, east and west; south of the line of Market street, the streets run in various directions and at various angles. Market street is one of the business streets of the city. Let us see how may different kinds of business located on Market street you can mention to me. What public building? What other large buildings? Van Ness Avenue is also a very wide street. It commences at Market street and extends to the

water's edge, which it reaches in the vicinity of Black Point. Van Ness Avenue runs north and south, and Market street northeast and southeast, it therefore lies in a diagonal line to Market street. Does it then form a right angle with Market street? Does it run parallel to Market street? Can you tell me what kind of buildings we find on Van Ness Avenue? Is it a business street? Point Lobos Avenue is another very wide street; it commences at Laurel Hill Cemetery, or Lone Mountain, and extends in a westward direction to the Pacific Ocean, which it reaches just south of Point Lobos; Point Lobos forms the southwestern boundary of the Golden Gate. Point Lobos Avenue runs in an easterly and westerly direction; is it then parallel to Van Ness Avenue? To Market street? How many of you have been on Point Lobos Avenue? Did you see as many business places as on Market street? As many private residences as on Van Ness Avenue? Did you meet any heavily loaded business teams? What rocks are in the Pacific Ocean opposite the end of this road? What animals live on these rocks? Front street, Battery street, Sansome street, Montgomery street and Kearney street, all run from Market street north towards the water, in the direction of North Point near Meiggs' Wharf; they all run in a northerly and southerly direction; (drawing) the lines which separate them are parallel lines, and hence we say these streets are parallel to each other. Each of you may tell me of some place of business on either of these streets. Are these business streets? Each scholar should give the name of the street on which he lives, and the directions in which it extends. Also, the direction at 12 o'clock M. of the shadows in any given street; if they fall in the same direction as the street, then the latter must extend north and south; if, on the contrary, they fall upon one side, then the street extends rather in an easterly and westerly direction; very narrow streets extending in the latter direction will lie wholly in shadow at noonday. The chief aim of this exercise is to enable the learners, wherever they may be, to recognize the cardinal points. There are so many streets in the city that we cannot name them all; some are long, some short; some wide, some narrow; some straight, some crooked; some are called places, courts, or alleys; these are generally shorter and narrower than most of

the streets, and some are closed at one end. What can you tell of the different kinds of paving with which the streets are covered? Of what use is it to pave the streets? At night the streets are ligted with gas; where does the gas come from? In Summer some of the streets are watered; why?

c. *Public Squares.*—There are several of these in the city. Who can mention one? another? Many of you have seen Portsmouth Square. It is surrounded, or bounded, by Brenham Place, Washington street, Kearney street, and Clay street. As many of you as can do so, I wish to visit this square, and tell me on which side (north, south, etc.) each of these streets lies, and, also, how many steps the square measures. (It is better, instead of Portsmouth Square, to select the square nearest the school-house for the first lesson; for the second, for each child the square nearest his own home, or one which he must pass on his way to school, and others afterwards. Let the pupils bring in drawings of these squares, representing the measurements they have made, accompanied by written descriptions, always insisting upon the cardinal points being indicated, and this from their own observation.) Among others you have mentioned the Golden Gate Park. This is in the shape of a parallelogram, half a mile in width, and over three miles in length; it contains about one thousand acres; its longest extent is from east to west, while its width of one half a mile extends from north to south. It lies in a westerly direction from the new City Hall—its eastern border is a little less than two miles distant from the City Hall. The Golden Gate Park is bounded on the north by D street, on the east by Stanyan street, on the south by H street, on the west by the Pacific Ocean. It is to be entered through an avenue two hundred and seventy-five feet in width, and four fifths of a mile in length; the eastern extremity of this avenue is less than one mile west of the new City Hall. The western three fourths of the Park is, at present, drifting sand; the eastern one fourth is arable land. It is divided by several ridges of hills, some of which rise about two hundred feet above the average level of the Park, and four hundred feet above the level of the ocean.

d. *Sketching of a Map of San Francisco.*—The pupils have already been required to draw simple maps, representing the

location of the school-house, of their own homes, and of public squares, and other places in the city. They have observed that in every drawing of a map, south has always been opposite to north, east to west. Their maps should always be made with a cross indicating the four points of the compass; when drawing upon the blackboard, however, it is well to exercise them in varying the direction of the cardinal points; for example, while one has north indicated by the top of the blackboard, the next one may have it represented at the right, the next one at lower part of the blackboard, the next one at the left, and others may represent it at points diagonal to these; this, however, must not be done till after they have had sufficient practice not to become confused in the general rule that, on maps, north is represented by the upper part, south by the lower part, east by the right, and west by the left. The following method of sketching a map of San Francisco is given to illustrate the general plan, and is by no means offered as the best plan of arrangement. First, draw a cross representing the four cardinal points. In the middle of the quarter which represents the northeastern part of the space allotted to the whole map, draw a dotted line from northeast to southwest; as Market street runs a little east of northeast, and a little west of southwest, draw another line intersecting these at very acute angles; now erase the first line and leave the second line to represent Market street. In the middle of this line make a large dot to represent the new City Hall; now draw a small right-angled triangle at the north of Market street, making the dot the centre of the hypothenuse; the streets drawn may now be named, and the City Hall Park thus bounded: on the north by McAllister street, on the northeast by Jones street, southeast by Market street, west by Larkin street. Larkin street may now be extended northwards, its northern end indicating the vicinity of Black Point. Continue Jones street in a line parallel to Larkin street, the two intermediate parallel streets being indicated by lines, and their names learned. Now, extend Hayes street in a westward direction from the southwestern angle of City Hall Park. Next, draw Van Ness Avenue a little to the west of Larkin street, and parallel with it, beginning at Market street, crossing Hayes street at right angles, and terminating it

also in the vicinity of Black Point. Passing westward at a right angle from Van Ness Avenue, we come to Park Avenue, which leads to the parallelogram representing Golden Gate Park. A little north of the western end of the Park we find the Cliff House and Seal Rock; a little further north, Point Lobos. North of Park Avenue we will locate the Masonic, Odd Fellows', Calvary, and Laurel Hill Cemeteries. Fort Point a little further north than Black Point, northwest from Laurel Hill Cemetery, and northeast from Point Lobos; directly south of Fort Point is the Presidio. Let us now return to the Cliff House, and ride along the beach till we come to the Ocean House road; this road runs nearly east from the beach until we have gone some ways beyond the Ocean House, it then turns to the southeast till it brings us to the Industrial School; here the San Jose Railroad coming from the south, crosses this road opposite the Industrial School, and here we will take the cars, and wind along in a northeasterly direction, till we reach the San Jose depot on Market street; this depot is but a little distance southwest of the junction of Van Ness Avenue and Market street. On our way in the cars, when we had rode about one third of the distance, we passed St. Mary's College at the right and east of the road; at about three fourths of the distance rode in the cars, we passed the Jewish Cemetery at the left and east of the road; and half way between the Jewish Cemetery and the Market street depot was the old Mission Church—this church is also half way between the railroad on the east and Market street on the west. We will now locate the Alms-House by drawing a straight line northwards from the industrial School to the eastern end of the Golden Gate Park, and on this line, half way between the Industrial School and the Golden Gate Park, we will make the site of the Alms-House. We will next locate the County Hospital, which lies in a nearly easterly line from the Alms House, east, also, of the San Jose Railroad. Let us now return to the junction of Jones and Market streets, the northeast boundary of City Hall Park. Continuing our way through Market street in a northeasterly direction, after passing six blocks, we come to the first large business street that runs north and south; this is Kearny street, and we will represent it by a line running parallel to Van Ness Avenue,

Jones and Larkin streets. Kearny street is a long thoroughfare, and we will walk along it the distance of eleven blocks, when we find the street crossed at right angles by Broadway, which runs east and west; turning to our left we see the City and County Jail, on the north side of Broadway, a little distance from Kearny. Now, locate and name streets east of Kearny, and parallel to it. Locate and bound principal public squares. Names, in their order, of the streets between Kearny and Van Ness Avenue, etc. The location of school-house should have been noted as soon as it could be indicated by the outlines drawn; each child should also be required to locate his own residence on the map drawn by him. Of course each teacher will select additional points of importance, guided, somewhat, by the degree of interest this or that place may have for this or that class. Any map of San Francisco may be used as a first guide and aid in these lessons.

e. *Water Used in our Houses and in the City.*—We obtain the water which we use in our houses in two ways: first, from wells and springs out of which we usually pump the water; second, from pipes which carry the water into or through our houses. By the latter method there are always several large reservoirs, into which large quantities of water are conducted by pipes or flumes, and from them are subterranean pipes leading to various parts of the city. In some houses the water flows freely through pipes to the upper story; in other houses it does not flow freely to the upper stories without the aid of a force-pump. Can you tell why? The water which flows in subterranean pipes is also used in extinguishing fires. There are certain places to which the hose of the fire engine can be attached, and the water then flows through the hose and is thus thrown upon the burning building. Who has ever seen the hose thus attached? How can these hydrants be distinguished? Water which has been used and also rain water is conducted away in the same manner as pure water is brought into and through the city; the subterranean passages through which the waste-water flows are called sewers. The springs from which we obtain water for domestic purposes are springs of pure water; there are also other springs the water of which is impregnated with certain minerals, as sulphur, etc. These springs are called min-

eral springs and the water is considered beneficial in the cure of various diseases. Besides the mineral waters from natural springs, we have also manufactured mineral waters. Can you mention any mineral springs in this State? Where situated?

f. *Buildings in the City.*—(San Francisco taken for illustration.) The houses in which people reside are called *dwelling houses.* Are there any houses in which people do not reside? Name such. Houses belonging to individuals and adapted to the residence of but a few persons and not occupied for business or trade, are called private houses; houses belonging to the city or to a society of individuals are called public buildings; such are the city hall, county jail, theatres, churches, school-houses. Dwelling houses may differ from each other in height and in size; they vary in height from one to several stories; how many stories high is the house in which you dwell? Our school-house? Some houses that we can see from the window of the school-room? Some houses have neighboring buildings belonging to them, that are used for cattle, carriages, etc. Name some such house. In the city most of the houses are numbered. In San Francisco the City Ordinance makes Market street the starting point for the numbering of all streets leading from Market street, in either a northerly, a south easterly or a westerly direction; the streets laid down on the official map of the city as forming the water-front thereof, are made the starting point for numbers on all streets running westerly and south westerly therefrom; on all streets the numbers on the right hand side, starting from the point of beginning, are even numbers, on the left hand side, odd numbers. One hundred numbers are alloted to each block, fifty on a side; thus the numbers between one hundred and two hundred would be found in the second block bounded by principal streets; every number between two hundred and three hundred would be found in the third block bounded by principal streets, and so on. For each number there must be at least twenty feet frontage allowed. Can you tell me when we find two main entrances within twenty feet, how the houses are then numbered? In some streets from their being partially opened or cut through or from some other irregularity the numbers do not conform to the arrangement established by law. What is the number of the house where you

live? Is that an odd or even number? Is your house then on the right or left side of the street starting from the beginning of the numbers? Here a useful exercise may be made by selecting streets the numbering of the houses in which corresponds to the requirements of the City Ordinance, and requiring the pupils to tell in which *block* of said street a certain number will be found, on which *side*, where the street begins, what street, in their order, divide the block, and hence in what street said number will be found. In some cities, are houses that have been built a hundred or hundreds of years; these appear quite different to the eye from modern houses; in San Francisco, however, we have but few old houses, and none so old as many eastern and European cities have. Why? Of what are the very oldest houses in this city built? With what are the roofs covered? How many of you have ever seen such a house?

g. *Manufactories.*—Who of you has ever seen a manufactory or a factory? Where? What was made there? Let us see how many others we can name, telling where situated and special manufactures. In a factory there are a large number of workmen employed. They are usually aided by machinery. Some of these buildings are very large and have high chimneys; can you name any such?

h. *Churches.* What church is nearest to our school-house? In what direction from it? Do all the people in this city go to this church? *Different Churches.*—Protestant, Catholic, Hebrew or Jewish. The Hebrew or Jewish church is called the Synagogue. The word *church* means *the Lord's house;* the word *synagogue, a collection of people*, or a *place where people collect.* Mention as many churches and synagogues as you can, and tell where they are situated. Mention different parts of the church building; for example, vestibule, nave or body of church, aisles, choir, chancel, gallery, vestry, tower, steeple, etc.

i. *School-houses.*—Name and location. Grammar schools; high schools; primary schools; public and private schools; institutions for the deaf, dumb, and blind. Besides the above named buildings notice hospitals, theatres, libraries, Post-office, Custom house, and others, giving location, and purposes for which they are used. We sometimes see the American flag raised on public and private houses; on some private houses

there is often some foreign flag raised, and on the front of the house the national coat-of-arms of the same country; whom would we expect to find dwelling in such a house? Can you tell me any of the duties of a consul?

j. *The Fire Department.*—However securely a city may be built, it is always subject to one great danger—conflagration. In order to extinguish such fires as soon as possible, and wherever they may break out, the people of cities unite in means of protection. In different parts of the city we have engine-houses; in these, fire engines and other implements for extinguishing fires are kept. Can you tell me where there is one such house? Besides these engine-houses there is one central office where watch is continually kept, day and night. From this central office a telegraphic apparatus connects with signal-boxes in various parts of the city, and also with the different engine-houses. The signal-boxes are always kept locked, but, on the discovery of a fire, the box nearest the fire is opened and the signal communicated to the central station; from here the watchman immediately strikes on the alarm bells the number of the district where the fire is; the same apparatus which strikes the the alarm at the same time strikes also the alarm gongs which are to be found in every engine-house. In looking over the numbers of the signal stations we find certain numbers omitted; for instance, 20–30–40, and so on; also, 11–22–33, etc.; why are these numbers omitted? In which fire district is our school-house? the house where you live? From 1849 to 1851, San Francisco was devastated by six great fires, in which property valued at many millions was destroyed. These frequent and destructive conflagrations were due in a great measure to the materials used in buildings at that early day of the city's existence, they being, in great part, composed of thin lumber, canvass, paper, and cloth; also, to an insufficient supply of water, and a less efficient and well organized fire department than is now established. That people may not suffer loss by fire, Insurance Companies are established; these, on payment of a certain sum of money, agree to pay to the loser the value of the property destroyed. Houses, furniture, and merchandise are thus insured. We often see on a house a small plate or sign, bearing the name of some insurance com-

pany; why is it put on the house? Who of you have ever seen such a plate?

k. *Inhabitants of a City.*—1. Animals.—There are many people dwelling in a city, but, besides these are also many animals. Let us first speak of the latter. Many of these are of use to man; they are sheltered, fed and cared for by man; such are called domestic animals. Here mention of some to be made and some questions in regard to their form and appearances; then questions like the following: What people use horses? For what do they use them? In the city we see many horses but few oxen, cows, calves, swine or poultry; all the latter we usually find in greater numbers outside of the city. There may be many oxen, calves and swine and much poultry brought into the city but only to be slaughtered. Name different domestic animals and the special use to which each is put. Some animals are also merely for our amusement; for example, some kinds of dogs, birds, as canaries, parrots, mocking-birds, etc.; also goldfishes. There are places of amusement for the public, called zoölogical gardens; these contain a collection of a great variety of animals. Who of you have ever been in such a garden? Name some of the animals you saw. Many of these are brought from foreign lands; the men who take care of them are called their *keepers*, and they feed the animals and take care of them. These animals are kept not for mere pleasure, but also that we may see and learn about the animals of foreign lands. There also many animals at large in the city who find food and shelter for themselves; for instance, birds, rats, mice, flies, etc. 2. *People Dwelling in the City.*—The most important inhabitants of a city, however, are the *people* who dwell in it. In San Francisco, in 1872, there were 178,276 inhabitants; of these 5,000 were what is called a floating population, that is, they have no permanent homes in the city, but live in hotels, hospitals, alms-houses, etc.—or they call San Francisco their home, but spend most of their time making short voyages along the coast, bay or rivers. Counting the number of people in the city, county, country, etc., is called "taking the census. This is a very old custom among nations, for we read in the Bible that the ancient Hebrews and their families were numbered by sex and age; and the most ancient record of a census

that we possess is the enumeration, by Moses, of the people in the wilderness. The inhabitants of a place differ in age, wealth, religion, etc. According to age, they are divided into adults, and those who have not yet reached the age of eighteen or twenty-one years. Are you an adult? In regard to wealth, we find people of every degree, from extreme and helpless poverty to immense wealth. The rich have to help provide for the poor; this they do partly by the taxes which they pay to the Government, partly by establishing charitable and other societies, and also in more direct ways. When you no longer go to school, each of you will find something to do among your fellow men; for instance, what will *you* do? and you? etc. Thus each of you will follow some calling, that is, some pursuit, business or profession—a certain department of labor by which you will support yourselves and acquire property. The wealth which one possesses is called his property. Some of you will become farmers; where will those live and what will they do? Some will become mechanics; tell me some things which a mechanic makes. Some will be manufacturers; how many kinds of manufactories can you name? There are also many tradesmen or merchants, who buy and sell various kinds of wares and goods. A trader or merchant usually has on the outer wall of his store a sign, on which is his name and the kind of goods he buys and sells; often two or more persons unite in some business; this is called a partnership, and their names together is called the name of the firm or house. Merchants have others to assist them, and these are called clerks, book-keepers, cashiers, etc. A city where there are many merchants is called a commercial city; where there are many manufactories, a manufacturing city. Besides mechanics and merchants, there are also many other people—painters, musicians, singers, physicians, municipal officers, clergymen, lawyers, teachers, etc. Many people work the whole year in the streets; these are coachmen, teamsters, and other drivers, etc; others work in gardens and are called gardeners; and still others work on the water as fishermen, boatmen, etc. All the kinds of business we have mentioned are usually followed only by men. Women also have to work to support themselves and to acquire property; let us see how many kinds of business are

usually followed by women. The inhabitants of a city also differ in religion; there are Protestants, Catholics, and Hebrews or Jews. These different churches have schools to which children go once a week; what are such schools called? Are the pupils taught the same things that they learn in their day-schools? Some of these churches have day-schools also for children; can you tell me where there is one such school? Besides the inhabitants who have their home in any certain place, there are also people who come to that place to remain for a short time, sometimes for business and sometimes for pleasure; what accommodations are provided for these people whom we call travelers? Let us name several hotels and tell on what streets they are situated.

1. *Relation of Individual Municipalities to the Whole Country.*— As the different classes in a building constitute together one school, so a city and the surrounding towns and country constitutes a county; many counties are united in one State; many states united form our country. For the government of every *City* there is a Mayor and common council, board of aldermen or supervisors; of every *State* there is a Governor and legislature; of the *Country* the President and congress. These officers are chosen from among the people once in a certain number of years. The Mayor of a city dwells in the city; the Governor of a State in the capital city of that State; the President of the country at the National Capital. Who is the Mayor of our city? For how long is the Mayor elected? When was the present Mayor elected? When will his term of office expire? What city is the capital of the State in which we live? Who is President of our Country? For how many years is the President elected? When was our present President elected? When does his term of office expire? What city is the National Capital? Where is it situated? How far and in what direction from us? For the government and good order of cities, counties, states and country, much money is needed; this money is furnished by *taxes* which are paid to the government by the people; the rich have to pay large taxes, while the poor have but small taxes to pay.

[*For the California Teacher.*]

A SUGGESTION OR TWO.

A brief experience as a County Superintendent of Schools, has revealed to me what seem to be great defects in our common school system. No one will maintain that the system is perfect; nor is any one prepared to say that every change that could be suggested would be an improvement. That which appears to one to be a defect, to another is a commendable feature. But it is only by careful study of the system; just criticisms of its workings; and honest expression of opinion concerning the best plans for its advancement, that we can hope to bring it, if at all, to a perfect state.

Let me say at the outset, lest I be misunderstood, that I suggest the ideas embodied in this article, more for the purpose of calling forth a discussion as to the best method of school government, than for the purpose of stating my own opinions. I do not know that the plan I suggest is the best one; but I submit to those connected with our district schools all over the State, whether it is not a better one than that now in use.

Our method of local school government is a good one, but attended with many difficulties and annoyances. It is right that the people of every locality should exercise control over their district school. But accompanying the exercise of the right, are results far from satisfactory. There are sometimes dissensions and disturbances; sometimes neglect of the schools' interests or indifference to its success; and there is sometimes an ignorance of the best measures to be adopted to further the progress of the schools.

It may not be out of place to call attention to some of these defects.

To begin with, school elections are frequently allowed to go by default. There is in many instances an almost entire apathy, and when men accept the position of school trustee, they do it under protest, and only because they feel that they owe a duty to the neighborhood and themselves. In nine cases out of ten, the position is accepted through pure goodness of heart and *pro bono publico*. It is fortunate for the schools that heretofore they have had such excellent governors. Nearly always when the

office seeks the man, it fixes upon the best one. Our trustees are representative men—men who, were they to devote their energies to the schools, would do much to improve them.

But men elected to public positions against their wish, however capable they may be, are not so apt to bring to it the same degree of interest and attention that they would, did an honorable ambition lead them to aspire to it. They cannot help feeling that the services rendered are comparatively valueless, that they are doing for the public school what no one else wants to do. Especially is this the case of school trustees. Their position is a thankless one. Every body blames them and criticises them. They are a mark for every shaft. Many a man has made all the enemies he ever had, while conscientiously discharging his duties as a school trustee. After ex-President Buchanan had retired to private life, he was several times elected constable of the town where he resided. He was compelled, each time, to decline the proffered honor. No doubt he would have made a very indifferent officer, as do all who give grudgingly and hesitatingly, that which they feel the public has no right to exact, and which, when given, is oftentimes not appreciated.

But there is another view of the matter. School trustees receive no compensation, and yet are expected to neglect their own business and attend strictly to that of the school. To perform faithfully the duties of district clerk, requires no small amount of time and labor. There are a hundred details that must be attended to if the school is to go on properly, and attention to those may take a man from the plow or the shop, at a time when he can not well afford to go. If he go, he loses his time and destroys his business, thereby perhaps, robbing his family of needful income. If he do not go, his neighbors denounce him because he accepts a position and does not attend to his duties. Such is human nature and such the trials of a school trustee. Or, they may employ a teacher to whom some patron of the school may have conceived a dislike. The inevitable result is a harsh criticism and an unpleasant coolness. I have known districts so embittered with petty feuds arising from differences of opinion in regard to the conduct of school matters, that sociability and good feeling were almost entirely destroyed.

Now, in place of the present plan of electing district trustees, the following outline of another plan is presented as a substitute: Let a Board of School Supervisors or Trustees for the county be elected by the people, to take charge of the schools of the entire county. Let this Board consist of five to ten of the citizens of the county, who, like the present County Supervisors, have the leisure, the means and the inclination to serve the people for almost nothing. A small salary should be paid, enough to cover the actual expense incurred in the duties of the office. Give to this Board of School Supervisors the general powers and duties for the county, that are now given to trustees by section 1617 of the Political Code. Make the School Superintendent of the county, the presiding officer and executive agent of the Board. Let the Board meet monthly, and have power to appoint two or three Deputy Superintendents, who, in connection with the School Superintendent, shall constantly visit and examine the schools, reporting at each meeting of the Board. Let the districts remain as at present, and each one draw, as now, the amount of school money to which it may be entitled, according to the number of school children it may contain, and let the law be so framed as to require the School Supervisors to expend for each district, the amount of money to which it may be entitled, without the power to transfer from one to another.

Such, without going into further detail, is the outline of the plan I would suggest to take the place of the one now pursued. That there are objections to it, I am well aware. There are objections to every plan. But there are strong reasons in favor of this method—reasons so strong that I think it at least worthy of trial. Among others that could be named, are the following:

It would inspire a more general interest. There will not be so many petty strifes, and so much jealous animosity. There will be a larger interest in the affairs of the whole county, instead of being circumscribed as at present by the boundary of a single district.

Men will seek the position of School Supervisor, because the place will bring with it considerable power and influence. The employment of the teachers for an entire county, and the control of a large amount of business, would make the place a desirable one.

While the duties of the position would be more onerous than those of a Trustee, they would bring a man into a wider sphere of action, and greatly multiply his influence.

The schools would be furnished with more suitable teachers. By this I mean that the board, having before them the condition and wants of the schools of the whole county, and knowing the capacity and efficiency of the various teachers who might desire employment, could select for any given school from the applicants the one most fitted to teach that particular school. As it is, trustees many times have no means of knowing the capacity or suitability of a teacher except from the certificate presented. This is by no means an infallible test; and very often two teachers will secure two schools and succeed poorly if at all, when if they had interchanged places they would have done admirably. I have known many instances where teachers have failed miserably in one school and succeeded in another. Because, therefore, of this peculiar adaption of a particular person to a particular locality, and of the superior facilities of the board for knowing this, more suitable teachers would be secured.

It would prevent obviously the frequent change of teachers so common in the district schools of the country. I know of nothing that has prevented so much the success of our schools as the frequent change of teachers. But few remain more than a term, or at most two, in a school. For some reason they change and go to another locality. In general, there can be no success without the guidance of the same master.

It would economize the public funds by enabling the board to purchase supplies in bulk, and to distribute them as needed in the different localities.

It will do for the counties what a board of education does for a city. There is as much necessity and reason for dividing a city into fifty or a hundred districts, each with its own board of governors, and its independent schools, as to divide the county. I mean so far as the government and control of the schools are concerned. Or there would be as much reason in dividing a county into a large number of districts, each with its own officers for the purpose of controling and transacting the business relating to its roads or hospital, or elections. There must be

general oversight in all of these things, and there ought to be in regard to the schools.

It will secure a more thorough supervision of the schools; more uniformity of classification of the pupils of country schools; a more regular and systematic adhesion to the course of study prescribed by the State Board of Education, and more equality in regard to teachers' salaries.

Such are some of the advantages which this plan seems to posses over the one in use. It may not seem at first to be at all superior, and the difficulties attending its introduction seem insurmountable. But I think that all of these can be overcome. I have mentioned the ideas attempted to be embodied in this article to several trustees of this (Santa Clara) county, who in each instance have thought the plan impracticable; but who, upon its being unfolded, have candidly expressed the opinion that it would be an improvement.

There is an objection that its tendency is to centralization of power, and as many condemn this in the general government so they do in all local government. While this is in a measure true, it is equally true that there must be some centralization of power. Authority must be concentrated somewhere. We should not contend for a theory if its practical application is unsatisfactory. We want results and not an applied theory. But this is not such a centralization that any harm—the least—can result from it. No county is so large that the acts of its Board of School Supervisors would be beyond the reach of fair criticism and review; nor any so large that the power to control the school affairs of the county would be so large and so dangerous that it could not be safely entrusted to half a dozen of its best citizens.

The German system of education has been much admired, and justly so. Its results are truly wonderful—accomplished, as they are, only by the most thorough supervision and careful discipline. If I correctly understand that system, their school teachers are government officers, duly appointed to a particular school and retained, at the pleasure of the government, so long as successful. It thus transpires that the educating is thoroughly done. There is no shirking, and no sham. It is, perhaps, the best feature of the German system. The plan pro-

posed is a kindred one. It differs in that it makes the appointing board an elective one, thus reserving all rights to the people.

Many have pronounced our public school system a failure. Such are not cynics or aristocrats, but honest critics. All admit that it does not accomplish what it should. This evil is not to be found in one part or another, but may be here and there throughout the whole. It must be eradicated little by little. Whenever there shall be found any part which seems more defective than the rest, it must be modified or rejected, and another substituted. Our system for the examination of teachers is a great improvement upon that in use in other portions of the land; may we not improve in a like degree our system for the government of the schools?

GEO. F. BAKER.

[*Condensed from Findley's Manual of Industry.*]

GARDENING FOR SCHOOLS.

[We offer these articles to the school-boys of California, believing that no occupation is more pleasing, interesting, healthful, and at the same time useful for the children as well as the parents, than the cultivation of a small garden-spot. Parents truly desiring the welfare of their children, will kindly aid us by interesting their children in these articles. These articles also offer many facts, worthy to be discussed in the school-room.]

I.

§ 1. Gardening is not only a pleasure and a diversion, but also a necessary occupation, and one which supplies the means of living, both from its productions and the labor it requires, to large numbers of mankind. It is necessary, pleasant, and profitable, and instruction in the art of gardening, with the practice of it, is one great means of rendering young men industrious, useful, healthy, contented and prosperous in after life.

Gardening embraces the cultivation of the kitchen garden and the orchard; this is termed Horticulture. The distinguishing difference between gardening and agriculture is, that in the operation of the former we cultivate land on a small scale, but in those of the latter, upon a large scale.

Horticulture comprehends the cultivation of every description of root, herb, plant and fruit, whether employed in cookery or used in the dessert.

Gardening also embraces Floriculture, "or the culture of flower-gardens, botanic-gardens, shrubberies and pleasure grounds." Arborienlture means the culture of shrubs, and of forrest trees, the timber of which is employed for building, and for various purposes in the arts and in general economy. Lastly, to landscape gardening belongs the formation of gardens, lawns, roads, lakes, ponds, artificial scenery which are nomiated ornamental or picturesque.

§ 2. By the term *soil* is understood a primitive earth, or a combination of earths in a state of mixture with organized matter, fit for the growth of plants. The surface of the earth on which plants have grown and decayed, is properly denominated soil, while the earth at a foot or more beneath the surface, commonly called subsoil, is comparatively without organized matter, and is therefor properly denominated earths, clay, sand, gravel and rocks, or stones as the case may be. Generally speaking, the surface of the earth partakes of the nature and color of the subsoil or rock on which it rests.

It is here necessary to state, that the earths which most abound are silica (silix, commonly called flint) lime, alumina (called also argil or clay,) and magnesia. Silica which constitutes the siliceous or flinty sand of our seashores, is universally diffused. Water passes so freely through it, that no vegetation can thrive in it when unmixed, in consequence of its drying so rapidly.

Lime is also abundantly and widely distributed, usually in the form of chalk, and what is termed limestone or carbonate of lime. Lime enters largely into the composition of animal bodies, forming a constituent part of the bones of animals, and also of shells. Lime, and especially its phosphate, is valuable as manure.

Alumina or clay, which is employed for an infinite number of purposes, is seldom found pure in nature; it enters largely into the composition of rocks. Its most frequent forms are plastic clay, slate rocks and felspar, a composition of alumina and silica, with a small portion of lime, of potash (alkali) and of oxide (rust) of iron. One of the particular properties of alumina, is that of not permitting water to pass through its substance. (Natural reservoirs of water in the interior of the earth.)

Magnesia is less abundant in nature than either silica, lime, or alumina. It enters into combination with other earths. Serpentine, a greenish rock, so common in the vicinity of San Francisco and other places, contains from 33–44 per cent. of magnesia.

In addition to the earths named may be mentioned certain salts, such as potash and soda.

Pure clay, silix or lime, when alone, is barren. Every cultivator of a garden is aware that the addition of clay gives cohesion to sandy or gravelly soil; that sand and gravel, when mixed with a clayey soil, diminish its tenacity; and that these changes permanently increase the productive powers of the respective soils.

A soil is termed wet when habitually wet; and dry when habitually dry. Soils, especially clays, on retentive subsoils, are habitually wet. Soils on porous subsoils, especially gravel and gravelly loams, are habitually dry. The most productive soil that which is so constituted as to maintain such a degree of moisture as may be required in very dry, and only to give a healthy supply of it to the plants in very wet, seasons.

Alluvial soil is formed by the accumulation of minute particles of earth and light vegetable matter, washed from the surface of the higher ground by the water of rivers and torrents in the time of floods. It is fertile, easily cultivated and fitted for the production of every variety of crop.

The nature of the materials which compose peaty (peat, moss or bog) soil, is vegetable in character. Its subsoil—generally clay—is always retentive. Peaty soil is naturally poor; but when mixed with other soils, and well cultivated, it becomes highly productive.

Loam is a term appled to any sort of earth, containing a sensible admixture of decomposed vegetable matter. A loam is termed clayey or sandy, according as clay or sand may predominate.

Mould is a term applied to either a clayey, a sandy, or gravelly loam, having been under cultivation, and enriched by the application of decomposed animal and vegetable matter.

Humus is a term applied to decomposed vegetable matter.

BOTANICAL GARDENS.—It is interesting to learn that the efforts made by the various botanical gardens and experimental sta-

tions in Australia, have been most successful. Two of the colonies—Victoria and Queensland—are now able to bring into the market, an appreciable quantity of native grown sugar, extracted in the one instance from beet-root, and in the other from sugar cane. There appears, also, to be little doubt that almost every semi-tropical plant may be cultivated in some part of the provinces. Paragraphs 66 and 67 of the Act to create and organize the University of California, remained a dead letter thus far, else a similar statement might be made for this State.

TEMPERATURE.—Thibet is stated to be the hottest country in Summer, its temperature in the shade rising to 150°. In Senegal and in Guaduloupe, the Summer temperature is said often to reach 130°. Throughout the delta of the Ganges, the mercury rises to 120°. The European mean Summer temperatures vary from 70° to 90. Iceland records its midsummer heat at 45° and Nova Zembla at 34°.

THE PHYSICAL PROPERTIES OF SOIL.

1. *Absorption or Retention of Water.*—The property of retaining water is of the greatest import. Sand retains only from 25 to 26, loam, 50, clay, 70 to 74, lime, 80, rich mould, 89, and pure loames even 180 per cent. of its own weight. These figures express the quantity of water necessary for the saturation of the various soils mentioned, or rather that quantity of water retained by capillary attraction. A clayey soil will yet sustain its vegetation when 1-10 of its capillary water remains, while the vegetation upon a sandy soil will begin to suffer when from ¼ to ⅛ of the quantity of water necessary for saturation is lost. This defect of sandy soils is, in a measure, ameliorated by rapid and sudden changes of temperature, which condense the vapors rising from the subsoil, and also those contained in the atmosphere.

2. *Cohesion of Soils.*—This property is possessed by sand in the least degree, and by pure clay in the highest.

3. *Evaporative Power of Soils.*—Sand completely saturated with water will lose, at a temperature of 194 degrees 83.4 per cent. of

it within four hours; a loss much greater than that of any other soil. Humus loses under the same conditions but 20 per cent. If we bear in mind, then, that humus will absorb water to the extent of 180 per cent of its own weight, and will emit but little, we may form a tolerably correct idea of its influence on vegetation, especially in a dry climate.

4. *Shrinkage of Soils.*—Shrinkage caused by drying differs largely in different soils. Sand shrinks but little, hardly any, while humus possesses this property in the highest degree. Peat shrinks one-fifth in bulk, and strong clay nearly as much.

5. *Absorption of Moisture from the Air.*—This property must not be confounded with that of retention, treated of under number one. In a dry and hot climate like ours, the property of soils of absorbing moisture from the atmosphere is of the greatest import, and should be carefully studied. Sand absorbs no moisture, clay, 24.5; lime, 17.5; humus, 60 per cent., at a temperature of 59 to 65 degrees. Vegetable tissue possesses this property in a high degree; fine straw will absorb to the extent of 45 per cent. of its own weight. What shall we think, then, of the wisdom of farmers who annually destroy their straw by fire, or haul manure to the creeks to be swept away by the floods? We destroy our forests, thereby permitting high winds to sweep over large areas unchecked, and burn annually the straw, and then complain of insufficient moisture. Certainly there is no want for instruction in Natural Sciences in our schools!

"This world, ere long, a world of tears must weep."

6. *Absorption of Oxygen.*—This depends entirely upon the various constituent parts of the soil and its porosity. Here again humus is of the greatest import, for it makes soils porous and changes, while decaying, the penetrating oxygen into carbonic acid, the most needful element in the nourishment of plants.

7. *Conductibility of Heat.*—Soils differ materially in regard to this property. Some lose or emit heat quicker than others. Sand heated to 144.5 degrees cooled off to 70.2 degrees within three and a half hours, while humor, subjected to the same treatment, required but one hour and forty-three minutes. This experiment will help us to explain the comparative rank

growth of vegetation on the drift-sand along the sea-coast; and assist us also in the explanation of the cause of frosts in low places where decayed vegetable matter generally accumulates.

8. *Temperature of Soils—Ability of Being Heated by the Rays of the Sun.*—Here come into consideration color, degree of moisture, density, and the angle under which the rays of the sun strike the surface of the soil. Humus, being of a dark color, is heated more than any other kind of soil.

9. *Capillary Action of Soils.*—Some soils when immersed in water will become moist, or attract the water upward. In a sandy soil the water will rise from a subsoil by means of capillary action from 6 to 10 inches, in clayey soil from one to two feet, in peaty soil as high as three feet. In mixed soils it is generally from one to one and a half feet. Water rising from the subsoil will evaporate as it approaches the surface, and leave the mineral substances which it holds in solution. This offers an explanation why fields, although exhausted, still produce a tolerable crop without manuring.

COSMOS.—In the year 1845 appeared the first volume and in 1846 the second of Humboldt's Cosmos. As comprising a view of the whole created universe, depicted with the most wonderful sympathy, the book is as it were a canon, forming a key to everything that was known of nature at the time. A *Divina Commedia* of Science, the Cosmos embraced the whole universe in its two spheres, heaven and earth. Under the leadership of the great searcher of nature, as Dante once by the hand of Virgel, we climb from the depths of the universe with its furthest nebulæ and double star down through the star depths to which belongs our solar system, to the air and sea-enveloped earth, where form, temperature and magnetic condition are unvailed to us; then to the wealth of organic life which, stimulated by the light, unfolds itself on its surface. It is an overwhelming picture of nature of surprising beauty of outline, abounding in grand perspective with the most careful execution of the smallest detail. Three discoveries, however, made during the last quarter of century have entirely changed the position of natural science: The mechanical equivalent of heat, spectrum analysis and the Darwinian theories.

DEPARTMENT OF PUBLIC INSTRUCTION.

The February semi-annual apportionment of the State School Fund, has been postponed until March 1st, owing to the delay experienced by the Controller of State in obtaining the supplementary settlements of County Treasurers.

A County Superintendent submits the following case: —— School District contracted last year a debt which could not be paid at the end of the school year. This year the district established two schools, and maintained them four months. The Trustees thereupon, make the following calculation: Two schools maintained four months each, give eight months' schooling as provided for by law; the schools are therefore closed, and the balance of school funds to the credit of the district will be used for paying the indebtedness contracted last year. The County Superintendent asks for our decision. We respond: That a district must establish as many schools, *i. e.* departments, as are needed to afford all the children of the district, equal educational advantages (section 1618); that the schools so established, must be maintained for an equal length of time during the year (section 1619), and that all districts not excepted under section 1848, must maintain their school or schools for at least eight months, and that to provide funds enough to maintain the schools this minimum length of time, section 1846 provides that the Board of Supervisors in each county must * * * levy a special school tax upon the property in each school district in which there is a deficiency, for an amount which, together with the State and county money to be received, is sufficient to maintain the school (or schools) for eight months during the year. If there are not sufficient means to maintain all the schools or departments established, then the several schools or departments must be maintained in the following order: Primary, Grammar and High School departments or schools. In other words, if the funds run short, the High School department is closed first; if the funds run still short, then the Grammar department. Restricting ourselves to the case above cited, our decision is that the Trustees must maintain each of the two schools organized in their district, eight months, and no unexpended balance can be on hand at the end of the present school year, except both schools have been maintained at least eight months. And furthermore, no outstanding debts contracted last year can be paid until at the *end* of the present school year, and then only if after maintaining both schools at least eight months, an unexpended balance is on hand.

Election for Trustees must be held under the provisions of sections 1593 to 1602. To one point only is it necessary to draw attention: A ballot, according to section 1186 of the Political Code, "is a ticket folded in such a manner that nothing written or printed thereon can be seen." The other provisions of the Code relative to Elections do not apply to elections for Trustees. Such, at least, is the opinion of the Attorney General. But all elections for voting District School Taxes, must be held, as nearly as practicable, in conformity with the general election law. For the benefit of school officers we give a synopsis of the provisions of the Code under which an election for voting a District School Tax must be held. The time and place of holding the election, notice of election, appointment of Board of Election, contents of ballots, are prescribed in the School Law. The Great Register of the county must be

used; a Poll List must be kept; the ballot paper must be of the size, color, weight, texture and appearance as prescribed by law and designated by the Secretary of State; ballots must be folded in the manner prescribed by law; no tickets must be distributed or opened within one hundred feet of the polls. Marked ballots, and ballots not conforming to requirements of law, must be rejected.

FOR the March Quarterly Examination the State Board has prepared no papers on Reading and Penmanship. County Boards will frame their own questions and exercises in those studies. All examination papers which are to be submitted to the State Board of Examination, must be sent either by Wells, Fargo & Co.'s Express, at the sender's cost, or by mail, *full letter postage prepaid*—three cents for every half ounce or fraction thereof. Any set of papers not sufficiently prepaid, will not be taken out of the Post-office.

LAST month, we explained in detail the manner of making out the Teacher's Report. We now take up the Census Marshal's Report. County Superintendents, before *accepting* a report, ought to be satisfied that said report is correct. The usual practice is to file a report without examination, until the time comes to collate the census statistics, and then gross errors and omissions are frequently discovered. To correct these causes a great deal of trouble, and entails a loss of sometimes valuable time. Before accepting a report, then, and making out a warrant for the services rendered by the Census Marshal, County Superintendents must satisfy themselves on the following points: 1 That persons living near the boundaries of contiguous districts are listed in but one district. 2 That the census children, *i. e.*, the number of white children between five and fifteen years of age, the number of negro children between five and fifteen years of age, the number of Indian children between five and fifteen years of age who live under the guardianship of white persons, are properly accounted for in one or more of the following three columns: (a) Number of children between five and fifteen years of age who have attended public schools at *any time during the school year;* (b) number of children between five and fifteen years of age who have attended private schools, *but no public* schools, during the year; (c) number of children between five and fifteen years of age who have not attended school at any time during the school year.

The Census Marshal must be very careful not to list in column (b) any census child which has attended public schools at any time, no matter how short, during the year. Secondly, attention must be given that all the census children are accounted for. To give a few examples: The Census Marshal of Carmello District reported the total number of census children at 140, and yet not a single child was reported as attending public schools, or private schools, or no schools. Now, the County Superintendent instead of accepting such report ought to have required the Census Marshal to properly account for the attendance or non-attendance at school of each census child, and then there would be no occasion to insert in the Annual Report, "incomplete returns." There will be no incomplete returns if County Superintendents attend to their official duties. In Grass Valley, the School Census Marshal reported 888 census children, and certified that 483 had attended public schools, 235 attended private schools, and 75 no schools, total, 793 children, leaving a balance of 95 census children unaccounted for. Now, a child must either have attended a public school, or a private school, or no school. After a great deal of trouble and loss of time, we ascertained

that the report should have given 583 as having attended public schools, 235 attending private schools, and 70 no school. To take the case of a whole county. The Superintendent of Nevada County reported 4,134 white census children, 2,902 of whom had attended public schools, instead of 3,031, the correct number as afterwards ascertained. 422 attended private schools, instead of 444, and 704 attended no schools, instead of 659. 38 Negro census children were registered and only 31 accounted for; of 7 Indian census children not a single one was accounted for. Now, it is a fact that not a *single* county sent in a correct report of the census statistics, and Superintendents may imagine what work we had to correct the fifty reports; and all this might have been prevented if County Superintendents had used the proper care and diligence in checking the Census Marshal's Reports. To conclude: In a Census Marshal's Report, or on the fourth and fifth pages of the County Superintendent's Annual Report, the number of white children attending schools, plus the number of white children attending any private schools plus the number of white children attending no schools must equal the total number of white children between five and fifteen. The same with Negro and Indian children. A new edition of Census Marshal's Reports will be printed, in which particular care will be taken to call the attention of Census Marshals to the above points. These reports will be ready for distribution in time for the taking of the next school census. County Superintendents will, therefore, see that only the new blanks are used.

ACCORDING to section 1,468, of the Political Code, the Board of Examiners of each county must, before the first day of May in each year, hold competitive examinations of all qualified persons desiring to be admitted from such county as pupils in the Normal School. If not too late, County Boards may examine such applicants at the March examination. This will avoid an extra session of the County Board. The law makes no provision to pay the expense of such extra session. The examination must be held in the same manner as examination for third grade county certificates.

[Extract from a private letter.]

Prof. Agassiz is preparing for an institute of ten or twelve weeks in midsummer at Nantuckot, to be occupied with Natural History. The Professor is to be assisted by some of the ablest naturalists of the country. He hopes eventually to secure the coöperation of the common schools to such an extent, that of those which can not each afford a teacher of Natural Science in one or more departments, several will unite in securing a competent instructor who shall devide his time and instruction amongst them. There is not a more healthy, jolly, or busy man in Cambridge than he. Prof. Gray lectures four times a week, is as hearty as he can be, and when not lecturing, is busy in his study, the herbarium, or in pushing along the special students. Prof. Whitney is to be met quite often with a preoccupied look on his face and a bundle under his arm that is very likely a map of California. Hon. B. G. Northrop has entered upon an interesting course of lectures on "American and Foreign Systems of Education," at the Lowell Institute. Miss Peabody discusses Kindergartening, Saturday afternoons. Dr. I. I. Hayes is just about closing a very entertaining course on "Arctic Discovery." Prof. N. S. Shaler has gone to England for his health, and will not return before June next. Dr. Gray says it will not be long before we shall have a Botany of California.

UNIVERSITY OF CALIFORNIA.

ANNUAL REGISTER.—The Annual Register of the University has been delayed in consequence of some proposed changes in matters of detail, but it will be issued during the present term. The term closes, April 2d, and the third term opens April 17th. Commencement will be July 16th.

The forthcoming Register for the year 1872—3, will give nearly the followiug summary:

I. CANDIDATES FOR A DEGREE.

1. *In the Department of Science.*—First Class, 7; Second Class, 16; Third Class, 28; Fourth Class, 44. Total, 95.

2. *In the Department of Letters.*—First Class, 5; Second Class, 8; Third Class, 12; Fourth Class, 21. Total, 46. Whole number of candidates for a Degree, 141.

II. STUDENTS AT LARGE.

In the Department of Science, 8: in the Department of Letters, 3. Total, 11.

III. SPECIAL COURSE STUDENTS.

In the Department of Science, 4; in the Department of Letters (of whom 6 study Latin or Greek), 29. Total, 33. Whole number of students, 185.

The requisitions for admission remain as heretofore. Candidates for the scientific department will be examined in the following subjects:

Higher Arithmetic, in all its branches, including the extraction of square and cube roots, and the metric system of weights and measures. *Algebra*, to Quadratic Equations. *Geometry*, first four books (Davies' Legendre or Loomis). *English Grammar, Geography, History of the United States.*

Candidates for the College of Letters will be examined in the following subjects, in addition to those mentioned above:

Latin Grammar; Cæsar, four books; *Virgil*, six books of Æneid; *Cicero*, six orations; *Greek Grammar; Xenophon's Anabasis*, three books.

The literary department has also a modified course, in which an equivalent study may be substituted for one ancient language.

THE University is expected to occupy its new site at Berkeley, at the beginning of the next academic year—(September, 1873). One building is already erected, and another is to be begun without delay.

THE SITE AT BERKELEY.—During the last three weeks, the work upon that portion of the University grounds designated for an arboretum and botanic garden, has been vigorously prosecuted. The ground has been ploughed and subsoiled, and a large number of the trees donated by Mr. Nolan, have been planted. The Coniferæ of the Pacific Coast and some foreign, in all eighty species; thirty distinct species of Eucalyptus, twenty-seven of Acasia, with a large collection of Australian and other shrubs. This generous gift was followed by valuable donations of deciduous trees from Mr. Kelsey, of Oakland, Messrs. R. Williamson and I. N. Hoag, of Sacramento, and others. As far as soil and exposure will admit, the arboretum is planted in accordance with the arrangement of the natural order. Thus the pines, firs, cypress, junipers, form a distinct section, so also oaks, walnuts, etc. Space is allowed for their foreign allies, thus providing for thorough experiments in acclimation. Each *tree table* is distinctly

lettered with the natural order, generic, specific and common name, also the habitat. Its number corresponds with that on the Catalogue (to be published hereafter), which will contain the age of tree, date of planting, name of donor, and any important fact respecting its uses. The Botanic Garden is laid out on the same plan, groups of shrubs and herbaceous plants, following each other in scientific order, but without formal arrangement, along paths and drives which are included in the pleasure grounds. A garden for Economic Botany, containing all plants useful for food, clothing, manufactures, medicines, etc., with nursery and testing ground attached, has been proposed, with the design of exhibiting one or two specimens of each in perfection; and near this, *an orchard of specimen fruits*, to contain one or more trees of every species which is known to succeed in this climate, with space reserved for experiments with new varieties.

STATE NORMAL SCHOOL.

The present school year will close on Thursday, the 27th of March. President Gilman, of the University, will deliver the annual address.

THE INSTITUTE CLASS OF THE STATE NORMAL SCHOOL.—This class was organized on the 13th of January, and closed on the 14th of February. Ten counties were represented by thirty teachers. Including the teachers of San Jose and Santa Clara, whose schools were closed a part of each week in order to afford an opportunity for them to attend the Institute, there were more than one hundred teachers in attendance. To this number might be added the one hundred and fifty pupils of the Normal School—more than half of whom are practical teachers. The evening lectures of the President and Professors of the University, and others, were highly appreciated by the largest audiences that ever attended a course of lectures in San Jose. All things considered, the Institute has been a gratifying success.

STATE NORMAL SCHOOL REPORT FOR JANUARY.—Number of pupils in the Senior Class, 24; number of pupils in the Junior Class, 90; number of children in the Training Class, 42. Thirty-two counties are represented in the regular Normal School classes. W. T. LUCKY, Principal.

COUNTY SUPERINTENDENTS, in ordering blanks, will please specify *how many* of each kind they need. Teachers writing on their own business, or asking for blanks, reports, etc., must send stamps for return postage. Examination questions are printed only for the use of County Boards of Examination, and not for general distribution. School officers must apply to their respective County Superintendents for all blanks, etc.

THE State Board of Education has established the following scale of percentages: For Educational Diplomas, ninety per cent.; for first grade State Certificates, eighty-five per cent.; for second grade State, eighty per cent.; for third grade State, seventy-five per cent. For County Certificates the *minimum* percentages are: For first grade, eighty per cent.; for second grade, seventy-five per cent.; for third grade seventy per cent. In other words, County Boards of Examination cannot grant Certificates upon a *lower* percentage than the one fixed by the State Board of Education, as given above, though any County Board may raise the percentage of any or all grades.

TO SCHOOL OFFICERS

We ask your special attention to the following New Articles, which will be found of great value:

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☞ *Send for a List of the Contents.*

The District Clerk's Record Book.

Very valuable in systematizing accounts and reports of Districts. It is ruled to show—1st. Income of the District from all sources. 2nd. All expenditures of the District. 3. Balance-sheet of the District. 4. Register of Trustees. 5th. Minutes of Trustees' meetings. Price, $1.75.

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J. F. MORSE, M. D., Emeritus Professor of the Principles and Practice of Medicine.
J. P. WHITNEY, M. D., Emeritus Professor of Physiology.
HENRY GIBBONS, M. D., Professor of the Principles and Practice of Medicine, and Clinical Medicine.
L. C. LANE, M. D., Professor of Surgery and Surgical Anatomy, and Clinical Surgery.
EDWIN BENTLEY, M. D., Prof. of Descriptive and Microscopic Anatomy and Pathology.
CLINTON CUSHING, M. D., Professor of Obstetrics and Diseases of Women.
C. N. ELLINWOOD, M. D., Professor of Physiology.
ADOLPH BARKAN, M. D., Professor of Opthalmology and Otology.
THOMAS PRICE, M. D., Professor of Chemistry and Toxicology.
HENRY GIBBONS, Jr., M. D., Professor of Materia Medica and Therapeutics.
WM. A DOUGLASS, M. D., Demonstrator of Anatomy.

The REGULAR COURSE of Lectures in this institution commences on the first Monday in June, and continues until November.

A PRELIMINARY or WINTER COURSE commences early in January of each year, and is free to all matriculants for the regular course.

Ample CLINICAL INSTRUCTION is given at the hospitals and the College throughout the year; and the Dissecting Room and the Laboratory are open the year round.

Further information may be obtained by applying in person, or by letter, to

HENRY GIBBONS, Jr., Dean of the Faculty,
No. 26 Montgomery street, San Francisco, Cal.

THE

CALIFORNIA TEACHER.

APRIL, 1873.

VOL. X. SACRAMENTO. No. 10.

[*For the California Teacher.*]

GUIDES FOR INSTRUCTION IN LOCAL GEOGRAPHY.

BY MRS. LANE.

III. FINAL STEPS INTRODUCTORY TO THE STUDY OF GENERAL GEOGRAPHY.

HISTORY.—San Francisco, the capital of San Francisco County, is in latitude 37° 46′ N., longitude 122° 23′ W. It is built chiefly in the northeastern part of a peninsula lying between San Francisco Bay on the east and the Pacific Ocean on the west. The peninsula is eighteen miles wide at its base and six miles wide at its northern point.

San Francisco Bay lies between Contra Costa and Alameda Counties on the east and San Francisco and San Mateo Counties on the west. On the south it touches the northern point of Santa Clara County, and on the north a narrow strait, three miles in width, connects its waters with those of San Pablo Bay. It is about fifty miles long and eight miles wide. It communicates with the Pacific Ocean by the Golden Gate strait, which is one mile in width.

San Francisco Bay is supposed by some to have been discovered in the year 1579, by Captain Drake. Drake was a distinguished English navigator. He afterwards became Admiral in

the navy of his native country, and was one of the founders of the naval greatness of England. Having been knighted by Queen Elizabeth, he is known in history as Sir Francis Drake. Others believe that the bay discovered by him was the one known at present as Drake's Bay, lying a little north of the Golden Gate strait and indenting the western coast of Marin County. Drake named the country New Albion; and on some old English maps we find California represented under that name.

The other and more probable history of the discovery of San Francisco Bay, is that nearly two hundred years after Sir Francis Drake's visit to, and, as he erroneously believed, discovery of California, the Spanish Government wished to secure possession of the territory of California, a map of which had been drawn up at Madrid as early as the year 1541. For this purpose the Spanish Government sent instructions to the Viceroy of New Spain to found missions and presidios at San Diego, Monterey, and various other parts of the northwestern country. The government of these settlements was put under the control of monks of the Order of St. Francis—two monks being placed in charge of each mission. All the missions were indebted, for their beginning and chief success, to subscriptions contributed by the Church in Spain and Mexico, and forming a fund known as "The Pious Fund of California."

After establishing the Mission of San Diego, the missionaries intended to travel to Monterey and there found a mission. They, however, wandered from their route, and journeyed on till they reached the bay of San Francisco, which is said to have derived its name from the following circumstance: Father Junipero, before leaving Lower California, had received instructions from the agent of the Spanish Government respecting the names of the proposed missions. The names of the saints to whose special patronage they were to be entrusted had been carefully selected from the calendar, but among them that of St. Francis did not happen to occur. "What!" exclaimed the missionary, "is not our own dear father, St. Francis, to have a mission assigned to him?" The agent replied: "If St. Francis wishes a mission let him show you a good port, and that shall bear his name." Accordingly, when the missionaries, in traveling north-

wards, discovered the bay mentioned, they exclaimed: "This, then, is the port to which the visitador referred, and to which the saint has led us—blessed be his name!" They forthwith named it San Francisco Bay, set up a cross, as was their custom, and returned to San Diego. This was in the year 1769.

It was not till the year 1776 that another expedition started from Monterey—traveling by land. It arrived on the 27th of June; and on the 9th of November, 1776, that being the day of Saint Francis, founded the Mission of San Francisco de Assisi, which subsequently bore the name Dolores. Besides the mission buildings, consisting of church, dwelling, work shops, etc., there were erected at the same time, and about four miles distant from them, a presidio and a fort. The names of the two monks who founded this mission were Francisco Palou and Benito Cambon, both natives of Spain. The mission remained under the complete control of the missionaries for fifty eight years—until 1834, when the missions began to pass into the hands of the civil officers of California. They had hitherto been very prosperous, their wealth consisting chiefly in cattle, but also in wheat, barley and merchandise. After passing from the control of the Church to that of the civil government their downfall was most rapid.

One of the first effects of secularizing the mission, thus placing the country under the control of the civil powers and encouraging colonization, was the establishment of the village of Yerba Buena. About two and one-half miles northeast from the mission was a small cove, one mile in width, and extending about one-half mile into the land. It was situated between two projecting points of land, now known as Clark's Point and Rincon Point. This cove, along whose front line the water was forty feet deep, has since been filled in, and where, in 1849, large ships rode at anchor, are now paved streets. The cove was named Yerba Buena. The meaning of Yerba Buena is *good herb*. The name is given to a mint which grows in this region in the form of a vine running upon the ground. The leaves are opposite, and it bears a tiny flower. The plant is very fragrant, is used for a tea, and is said to have medicinal properties. An island bearing the same name lies in the bay about two miles east of the city.

On this cove a small Spanish village had gradually grown up, bearing the same name as the cove. The date of its foundation is disputed; but we know that no village of that name existed before the year 1835. The first dwelling was erected in that year by Captain Richardson. It was simply a large tent, supported on four redwood posts and covered with a ship's foresail. In 1841 the cove was first visited by an American war vessel, the sloop San Luis. Whale ships had come here for supplies as early as the year 1822. In this latter year trade began between California and the United States and England, California's exports consisting mainly of tallow and hides.

The second house in Yerba Buena was built by Jacob Primer Leese. This was erected on the lot which now forms the corner of Clay and Dupont streets, and adjoining the lot on which stood the tent of Captain Richardson. This house was finished on the morning of the Fourth of July, 1836, and these two houses formed the beginning of San Francisco. In eighteen years from that time there was around that spot a population of 50,000. In twice that time—thirty six years—we have a population of 178,000. Mr. Leese celebrated Independence Day and the completion of his house by a grand banquet, to which guests were invited from far and near. Outside of the building floated the Mexican and American flags—the first time the latter was displayed on the shore of Yerba Buena. The first child born in Yerba Buena was the daughter of Mr. Leese and granddaughter of General Vallejo. Her birthday was April 15, 1838.

So late as 1844 Yerba Buena contained only about one dozen houses, with a population of not more than fifty persons. During the years 1842 to 1846 many thousands of emigrants crossed the Rocky Mountains and the Sierra Nevada to settle in California. Others came by the Isthmus and around Cape Horn. The Mexican Government tried in vain to stop this current of emigration.

The war of 1846 between Mexico and the United States terminated in the cession of Upper California to the latter Government.

The first chief magistrate, or *Alcalde*, of San Francisco, was Washington A. Bartlett. On the 30th of January, 1847, Mr. Bartlett published an ordinance changing the name of the town

of Yerba Buena to San Francisco. At this time there were only about fifty houses in the place and a population of 375, not reckoning the Indians. By this change of name Benicia, which until then had borne the name of Francisco, was obliged to change its appellation. It then assumed its present name, Benicia.

The growth of San Francisco received a severe check from the report of the discovery of gold. This discovery was made in the month of February, 1848, on the property of Col. Sutter, in El Dorado County. The news spread rapidly, reaching San Francisco early in the Spring of the same year. A large part of the population hurried, in the greatest excitement, to the placers or gold diggings. San Francisco soon gained by this, however, more than it at first lost; the bay was filled with shipping from many parts of the world, while the fortunate miners returned here to squander or spend their gold; others preferred to remain here and receive the gold of the miners in exchange for supplies, rather than themselves to endure the hardships of a miner's life.

Towards the end of the year 1848, the first rumors were heard of a party or society formed, as the members pretended, for mutual assistance in sickness or danger. This society was called the "Hounds." It was composed of ruffians and villians from all parts of the world; they became so bold as to parade on Sundays, armed with bludgeons and revolvers; at night they attacked citizens of every class, robbing them, destroying their buildings, maltreating and murdering them. At last, in July, 1849, their conduct became insufferable; the respectable portion of the community combined, organized a police force, arrested several of the "hounds," tried them, and sentenced some to be sent to any Penitentiary the Court might indicate. These sentences were not all carried out, but the society was by this means broken up. The success of the people's effort to free themselves from the power of these ruffians afterwards encouraged them in the formation of the famous "Vigilance Committee."

Associations under the latter name were formed not only in San Francisco, but in Sacramento, Stockton, San Jose, and other towns; they aided each other in watching and pursuing the destroyers of peace and good order throughout the country.

The discovery of gold in California had caused the immigration of an immense population, strangers to each other, and strangers to the laws of the land. The legal institutions which had grown up with the previous comparatively small population were insufficient for the protection of this sudden increase. Not only the reputation of its wealth, but also the condition of its society, made California especially alluring to desperados, rascals, and criminals from all parts of the world. While America and the different countries of Europe sent a share of such people, the large proportion of them were probably convicted felons sent by England to New South Wales and Van Dieman's Land; from there they easily managed to make the comparatively short voyage to California. Once here the opportunity was but too favorable for the resumption of their former mode of life; for here "prosecutors and witnesses were few or too busy to attend to the calls of justice; here jurors, not knowing the law and eager to be at money-making again, were apt to take hasty charges from the bench as their sole rule of conduct; here Judges, chosen by popular election, were either grossly ignorant of law, or too timid or careless, corrupt, or incapable to measure out the full punishment of crime; here the laws themselves had not yet been methodically laid down, nor the forms and procedure of legal tribunals digested into a plain, unerring system."

These desperados leagued together for mutual protection, assistance, and rescue, had their places of rendezvous where the police, few in number, poorly paid, and often in league with the criminals, hardly dared to enter. Moreover, if a criminal happened to be arrested, escape was rendered easy by acceptance of bail entirely worthless, insecurity of prisons, false swearing of witnesses, dishonesty of jurors, and incapacity or venality of Judges.

At length, in 1851, crime, in the forms of incendiarism, burglary, robbery, and murder increased to such an alarming extent that the public became impressed with the idea that the Courts were the *protection* and *refuge* instead of the *terror* of rogues; a great number of the most influential, orderly, and respectable citizens of San Francisco then formed themselves into an association, with constitution and by-laws: the associa-

tion was called the "*Vigilance Committee;*" it took upon itself to establish good order in the community, and to render life and property secure, although in doing so it was obliged to act independent of the legally appointed civil officers. The proceedings of the committee were attended with heavy expense, which was borne by voluntary contributions. They exercised the authority they assumed in a quiet and dignified manner. One of the provisions of their constitution was that no person brought before the committee should be punished without a fair trial and conviction. They provided themselves with arms and ammunition, drilled their forces, fortified their headquarters, and constructed cells for prisoners. They arrested and tried rogues and dangerous men, some of whom were hanged, some transported, some acquitted. Many who were suspected or were warned by the committee left the country. From all the evidence that can be obtained, it is not supposed that a single instance occurred in which a really innocent man suffered the extreme penalty of death. Those who were executed generally confessed their guilt and admitted the punishment to have been merited.

The Vigilance Committee having restored the city to a tolerable state of safety and tranquility ceased to act, but did not formally disband. In 1855 the city government had again become exceedingly corrupt, and Mr. King, in the *Bulletin* newspaper, criticised in severe terms its action, commenting particularly on the character of a man named Casey (who had served a term in the New York State Prison), a member of the Board of Supervisors, and who had powerful influence over the political caucuses of his party. He was charged with selling nominations for a price, and with furnishing bullies and ballot-box stuffers to elect his nominees; also with procuring the passage of fraudulent bills through the Board of which he was a member. On May fourteenth Casey murdered Mr. King by shooting him in the street, and then gave himself into the hands of the authorities. The Vigilance Committee, which had never been disbanded, was now put into active operation. The city prison was strongly guarded till the eighteenth, when a formidable force from the committee demanded Casey, who was surrendered by the Sheriff and taken to the cells of the committee.

Charles Cora, a gambler, who had shot Mr. Richardson, the United States Marshal, was also taken from the prison, and after trial, on the twenty-second both were hung in front of the committee's rooms, the people and press sustaining the proceeding. On June 2d a writ of habeas corpus was issued by Justice Terry of the Supreme Court for the rescue of a prisoner in the hands of the committee. No attention was paid to the writ, and on the following day Governor Johnson proclaimed San Francisco in a state of insurrection, ordered out the militia of the city, and commanded the Vigilance Committee to disband and disperse. Very few, even of those opposed to the committee, responded to the call, and practically the power of the State was, for a time, in the hands of the committee. The Governor called on General Wood for United States troops without success, also on the President of the United States. In the meantime the committee continued their labors, banishing prisoners to the Atlantic States, Australia, and the Pacific Islands. Judge Terry in opposing the arrest of a person who was in his company stabbed one of the committee's police; the Judge was subsequently arrested and kept prisoner until the man's recovery. A few weeks later the committee surrendered its power, having, during its administration of public affairs, tried and disposed of some thirty cases brought before them; four of their prisoners were executed, one committed suicide while his case was under deliberation, and most of the others were banished from the State. The ensuing election resulted in the choice of city and county officers favorable to the committee, and the city has ever since been comparatively quiet and orderly.

"Thus by almost a universal—a national—effort, was our beautiful country which had so long contained and been defiled by the sweepings from the prisons and the thieves' alleys of other lands once more made pure, sweet, and safe. Hercules did no greater labor when he cleansed the Augean stable by turning a river through it. The people of California, and more particularly the people of San Francisco, had turned the great stream of justice from its former slow, devious, and uncertain course, and sent its waters headlong to overwhelm criminals and wash society clean from the stains that crime had left."

Education.—The first American school in San Francisco was a *private* enterprise. It was held in a little shanty, and continued about one year, having been opened in April, 1847. In the latter part of the same year the first *public* school house was built. It was a small cottage, its site being the southwest corner of Portsmouth Square, where Brenham Place enters Clay street. This building was demolished in 1850, that the plaza might be maintained as a completely open and unencumbered square. This school house was in early times the general assembly room of societies of different characters, for religious gatherings, and for public amusements. In 1848 the first Board of School Trustees was appointed, and under their supervision the first public school of San Francisco was opened. This prospered for a couple of months; then news of the discovery of gold in the interior reached San Francisco and most of the inhabitants with their children left for the gold region; the Board of Trustees were scattered; there were no funds provided for the support of the school, and, finally, the teacher, left without pupils or salary, was himself obliged to follow in the wake of the general excitement. In 1850 Colonel T. J. Nevins established a school, which was supported by voluntary contribution. In 1851 the city government elected the first *Board of Education*, and this Board appointed Mr. Nevins first Superintendent of Public Schools.

Religion.—The first Protestant clergyman, the Rev. T. D. Hunt, arrived in San Francisco in October, 1848. He was invited by prominent citizens of different religious persuasions to act as chaplain for the town. He first held public religious services in the school house on the plaza. The first place erected especially for religious worship was a tent, situated on Dupont street, between Pacific street and Broadway. For this congregation an edifice was built in New York, and forwarded from there entire, with pulpit, seats, lamps and bell. On its arrival this was erected, in 1850, on Stockton street, near Broadway, and was then occupied by the congregation who had previously worshipped in the tent on Dupont street. Previous to the erection of this building, the Society known as the "First Baptist Church" had built a house for religious worship on Washington street, between Dupont and Stockton streets.

Benevolent Institutions and Societies.—The sufferings consequent upon the long voyage which most of the earlier immigrants to California were obliged to make, the want of comfortable dwellings to protect them from the inclemencies of the weather, and the absence of many comforts and nearly all the luxuries of life, produced so much sickness, poverty and distress, that, at a very early day, associations were formed for mutual assistance and systematic benevolence. So early as 1849 the Free Masons and Odd Fellows had established lodges, and these were followed by the organizing of a temperance society, Society of California Pioneers (August, 1850), benevolent societies for French, Germans and Hebrews, orphan asylums, both Protestant and Catholic, and many other associations for private benevolence and general usefulness.

Cemeteries.—Perhaps nothing better illustrates the spirit and condition of society in the early times of California than the manner of disposing of the bodies of the dead. In the earlier times, when there was but a small number of inhabitants, the church yard at the Mission had been the general place of deposit for the dead; but when the town had become peopled with a larger population of immigrants, strangers to each other, and with no stronger local interest than the gaining of gold, the living could ill afford the time required for accompanying the dead to a final resting place a mile or two distant, over almost impassable sand hills. Although there was a City Hospital, it was always filled to overflowing; and many a lonely sufferer, found dead, was buried in the sand near the tent which had been the scene of his last suffering. There was a small burying ground on the top of Russian Hill, which some years before had been thus used by Russian settlers, also a dreary spot on the side of Telegraph Hill was devoted to this purpose, and still later a piece of ground near North Beach. In 1850, what was then considered a large tract of land was legally and formally set apart as a public burial place, under the name of the Yerba Buena Cemetery, being the present site of the new City Hall, from which the bones of the dead had to be removed before converting the ground to its present use. In 1854 Laurell Hill Cemetery was dedicated to the slumbers of the dead; and still later, Calvary, Masonic, and Odd Fellows' Cemeteries, have

been alike consecrated. The former of these lies north of Point Lobos Avenue, and the latter south of the same, and all about midway between the Presidio reservation on the north and on the south, the avenue forming the entrance to the Golden Gate Park. Calvary Cemetery is owned by the Catholics. Besides these there are also two Jewish cemeteries, consecrated as the final resting place of believers in the Hebrew faith. These latter two are situated from two to four blocks south of the old Mission Church and about the same distance west of the San Jose Railroad.

Telegraphs.—In 1849 a station house was erected on the summit of Telegraph Hill which commanded a view of the Golden Gate. From there the approach and character of all vessels coming into the harbor was signalled to merchants in the city and others. This was a private enterprise supported by voluntary contributions. Afterwards another station was erected at Point Lobos. This was in full view of Telegraph Hill, so that the signals could be communicated to the latter station, while from Point Lobos vessels could be distinguished many miles at sea. In 1853 the first electric telegraph in California was opened. This was eight miles in length, and extended from San Francisco to Point Lobos.

Newspapers.—The first newspaper in San Francisco appeared in January, 1847. It was published once a week, and bore the name of *California Star.*

We have seen that the Mission of San Francisco de Assisi was at first a Spanish colony, established, with others, by instructions received from the Marquis de Croix, who, as Viceroy from New Spain when the latter belonged to the Spanish Crown, acted in accordance with orders received from Spain. The jurisdiction of the Presidio of San Francisco extended over the town of San Jose de Guadalupe, and the Missions of San Francisco, Solano, San Rafael, Santa Clara, San Jose and Santa Cruz. But the Spanish Court interferred little with the government of California. A commander-in-chief of the garrisons of the presidios was appointed by the Crown. His duty, however, being merely to protect the missions from hostile Indians, he was not allowed to interfere with the temporal government of the Fathers. The commander-in-chief resided in Monterey,

and the Fathers who presided at the different missions exercised full and complete power. They passed laws in regard to property, established penal laws, and even the death penalty, declared peace and war with the Indians, controlled the finances, and held under contribution the Spanish Government itself as well as faithful Catholics all over the world. This state of things continued until the year 1822, when, a revolution occurring in Mexico, the latter country threw off its allegiance to Spain, and in 1824 established a republican form of government. This involved the overthrow of the Spanish power in California. The new Mexican Government assembled a Congress and framed a Federal Constitution similar to that of the United States. This Constitution made New California a *Territory* of the Republic, its population being too small to allow of its constituting a *State*. The Mexican Congress appointed a Commander-in-chief for California. But his authority was merely nominal, and then, as previously, the real power vested in the hands of the Fathers.

In 1835, under the first administration of Santa Anna, an attempt was made to centralize at the Federal Capital the power of the Mexican Government. This greatly changed the Constitution of 1824—a change so much disapproved by California as to give rise to a rebellion there. The Californians appointed Señor Don Mariana Guadalupe Vallejo their General, forcibly expelled the Mexican Federal officers, disbanded the Government troops, and declared themselves independent. The Mexican Government was kept too busy with suppressing factions nearer home to attempt immediate suppression of the rebellion in California. In 1836 Santa Anna was defeated. But the party that succeeded continued the same policy. The excitement in California against it had, however, by that time subsided, and in 1837 the people of the latter country peaceably accepted the new Mexican Constitution and swore allegiance to it.

Meanwhile, particularly from the year 1834, the missions had gradually been passing from the control of the Church into the power of the civil authorities. Finally, in the year 1845, a large number of missions were sold at public auction and the remaining missions rented. The money thus raised was divided

into three parts, of which the missionaries received one, the second was devoted to the maintenance of the converted Indians, and the remaining third was converted into a fund for the support and extension of education and general charitable purposes.

Thus occurred the decline and fall of the missions in California. The Fathers, of course, suffered great loss in thus having the property which they had developed into a source of wealth to themselves seized and sold from them, and this, too, by a Government already their debtor to the amount of $450,000, borrowed from the Fathers by the Mexican Congress for the purpose of carrying on the government.

California, and consequently the Missions, remained under Mexican rule for some time. Meanwhile, during the years 1843, '44, '45 and '46, many thousands of emigrants from the United States settled in California. While the country was becoming rapidly Americanized a quarrel arose between the Mexican officials and the American settlers, in which the Mexican commander attempted to expel the settlers from the country. A general uprising of the Americans ensued, a declaration of independence followed, and active warfare was commenced against the Mexican authorities. Under the lead of Colonel Fremont and Commodore Stockton the Mexicans were defeated. Stockton proclaimed California a Territory of the United States and proceeded to establish a provisional government. The final struggles between the parties took place in January, 1847.

These troubles began before the news of the war between Mexico and the United States, which was declared in April, 1846, and which terminated by the treaty of Guadalupe Hidalgo, ratified in May, 1848. By this treaty California, which had already been conquered by its American population, was ceded, together with other territory, to the United States for the sum of $15,000,000.

The United States Government appointed General Kearney first Governor of the new Territory of California. He was established in this office early in the year 1847.

The rush of immigration was so great that a more substantial government became necessary for a population which soon amounted to a quarter of a million. After some steps taken by

the people themselves, General Riley, Military Governor of the Territory, called a convention of delegates to meet at Monterey, September 1st, 1849, for the purpose of framing a State Constitution. Their labors were finished on the 13th of October, and while the signatures were being affixed the guns from the fort were fired thirty-one times, the thirty-first time for California, which was to become the thirty-first State of the Union. The Constitution thus formed was adopted by the people, and on September 9th, 1850, the Congress of the United States admitted California into the Union.

Peter H. Burnett was the first Governor of the State of California. He was inaugurated on the 20th day of December, 1849.

The government of San Francisco of course changed with that of California. Under the Spanish rule the commander-in-chief of the military forces resided at the presidio of the district over which he had jurisdiction. In 1829 General M. G. Vallejo was placed in charge of the country to the north of Santa Cruz; his headquarters were at the Presidio of San Francisco. He remained here in this capacity until the year 1837, exercising until 1835 both the civil and military functions for the section north of San Jose. In 1835 Governor Figueroa, at the suggestion of General Vallejo, ordered an election of civil officers for the District of San Francisco, fixing the seat of government at the Mission of Dolores; this act dates the first civil organization at this important point. The chief magistrate was called the *alcalde*. The first alcalde of San Francisco was Francisco de Haro.

Under the Mexican laws an alcalde had the entire control of municipal affairs, and administered justice less according to any fixed principle of law than to his own ideas on the subject. When the Americans seized the country they appointed numerous alcaldes, instructing them to administer justice in conformity, as far as possible, with Mexican law and California customs.

On the 13th of September, 1847, the first *ayuntamiento* or Town Council was appointed to assist the alcalde, who found it impossible to transact all the business which now devolved upon him. To the labors of this council the city owes its first systematic municipal foundations.

On September 9th of the succeeding year the largest meeting heretofore ever assembled in San Francisco was held for the purpose of establishing a rate of value for gold dust. Coin was scarce, and as yet no mint had been established, it had therefore become necessary to adopt gold dust as currency. The meeting fixed its currency value at sixteen dollars an ounce.

On the 1st of April, 1850, the first election for county officers took place; the most important office to be filled was that of Sheriff, and, after an animated contest, Colonel John C. Hayes was declared the successful candidate.

On the 15th of April, 1850, the city charter was passed by the State Legislature; on May 1st it was adopted by the inhabitants of San Francisco, and municipal officers elected. Colonel John W. Geary, who at the last election had received a unanimous vote for the position of alcalde, which office he still held, was, by a large vote, elected first Mayor of San Francisco. According to the city charter municipal officers were to hold office only one year.

One of the principal acts of Mayor Geary was to veto a bill which had caused great excitement in the community. This bill, passed by the members of the Common Council soon after coming into office, allowed to each of the Board of Aldermen a salary of four thousand dollars a year; they, however, passed the ordinance, by the legal number of votes, over the Mayor's veto, and revenged themselves by refusing, for a long time, to grant the latter officer a salary. This source of dissatisfaction was corrected by the next Legislature, who declared that henceforward the members of the Common Council should not be entitled to any compensation for their services. The action of the Mayor was warmly approved by the people.

On the 15th of April, 1851, the Legislature passed an Act repealing the charter of 1850, reincorporating the City of San Francisco, and enlarging its limits. By this Act the boundaries of the city were fixed on the north and east co incident with the boundaries of San Francisco County; on the south by a line parallel with Clay street and two and one half miles distant, in a southerly direction, from the center of Portsmouth Square; on the west by a line parallel with Kearny street and

two miles distant, in a westerly direction, from the center of Portsmouth Square.

By an Act, approved April 18th, 1856, the several charters granted to San Francisco were repealed, the government of the *City* and *County* of San Francisco were *consolidated*, and their boundaries fixed and made co-incident. This is called the *Consolidation Act*. It took effect July 1st, 1856. The boundaries of the City and County of San Francisco are as follows: Beginning on the western boundary with a line separating townships two and three south (Mount Diablo meridian); thence running northerly and parallel to the shore so as to be three miles therefrom opposite Seal Rock; thence in the same general direction to a point three miles from shore on the northerly side of the entrance to the Bay of San Francisco; thence to low water mark on the northerly side of the said entrance at a point opposite Fort Point; thence following said low water mark to a point due northwest of Golden Rock; thence due southeast to a point within three miles of the natural high water mark on the eastern shore of the Bay of San Francisco; thence in a southerly direction to a point three miles from said eastern shore and on the line first named; thence along said line to the starting point.

The islands in the bay known as "Alcatraz" and "Yerba Buena," and the islands in the ocean known as the "Farallones," also form a part of the City and County of San Francisco.

The Consolidation Act fixes the day for the election of city and county officers (that of Judges excepted), to be the same as prescribed for general elections throughout the State. In years when no general election is provided for by law, these elections shall be held on the first Wednesday of September.

The city and county officers are elected for two years; their term of office begins the first of January.

Meaning of Spanish names of some places in the vicinity of San Francisco:

Alameda—An avenue of trees.

Saucelito—A little lump of willows.

Contra Costa—The opposite coast.

Point Lobos—Wolves' point.

Point Bonita.—Pretty point.

Farallones—Points of rock in the sea.

Alcatraz—Pelican.

A *vara* is a Spanish yard; it is equal to about thirty-three and one third English inches. The Town of San Francisco was laid out in lots of fifty varas each; six lots constituted one block, bounded by four streets.

Composition of the Soil.—We generally say the *soil* consists of earth. Let us take a handful of earth and examine it. First, let a little fall into a glass partly filled with water; the water immediately assumes the same color as the earth. Now pour off this water and then add fresh water, which is again to be poured off, and so continue to do until the water remains clear. The quantity of earth in the glass has become less, and has also lost its black color. A part of it became dissolved in the water, giving to the latter its dark color. This is called *humus*. It is formed from decayed animal and vegetable matter. What remains is genuine earth; or we may also call it *mineral earth*.

Thus we have seen that the soil consists of *humus*, or mould, and of *mineral earth*.

Every leaf that falls upon the ground decays there and produces a part of the vegetable mould. When there is much mould we say the soil is *rich;* when but little, we say it is a *poor* soil. A marshy soil is low land; which is, consequently, wet most of the time. Poor soil can be made rich by adding manure to it. Manures enrich the soil either by changing its composition, or by acting as a solvent, or absorbent, or they enter the plant as direct nutrition.

Another experiment to be made is to heat a small quantity of earth over a hot blaze until it glows like fire. It now gives out a smell as of something burning. This is the vegetable part of the earth, which part is *combustible*. What remains is *incombustible*—the mineral part of the earth. When the soil is composed wholly of combustible material it is called *turf*. In countries where such soil is found it is used for fuel as we use coal. Turf, or peat beds, are always found in very wet localities. The excessive moisture produces an excessive vegetable growth; this vegetation being still further stimulated by the vegetable mould produced by the vegetation. In the Irish bogs one kind of moss is particularly abundant, growing layer upon layer,

until in some places it reaches a depth of more than forty feet. The surface is usually a sponge like, fibrous mass of mosses, more or less decomposed. At a greater depth its properties as fuel are more valuable, forming near the bottom a black mass which, when dried, resembles pitch, or bituminous coal. Peat is also used for manure. The great region of bogs is the central portion of Ireland. We also find them in Scotland, in the lowlands of Northern Germany, and in our own country, where they are called swamps. They extend along the eastern coast as far as the Gulf of Mexico. With us, however, the vegetable matter is in a more decomposed state; it forms a black substance like mud, and is called *muck*.

Here in this glass is another kind of earth—*sand*. Pour water upon the sand, it does not dissolve; hold it over the fire, it does not burn. The sand consists wholly of fine solid grains.

In another glass is a mixture of coarse grains, some larger and some smaller. This is called *gravel*.

Sand is stone, which the forces of nature have ground or *disintegrated* into these small atoms. Gravel is formed in the same way as sand; it is coarser and generally found mixed with it. The sand and gravel found in the soil are not alway derived from underlying rock, but often from the disintegration of the rocks of surrounding hills, or of regions more or less distant.

Clay is another ingredient of some soils. It is formed by the *decomposition* of rocks, the purest being that of granitic rocks, which may be considered the original source of clays. Clay is a fine sediment usually found along the banks of rivers, and at the bottom of the ocean, ponds, lakes, etc. When this accumulates in any place it forms a dough-like mass of a flaky structure which resembles thin leaves. We find *beds or quarries of solidified clay*, which easily divides into thin sheets of a rather soft rock or stone. The slate used in the school room is one example of this, the rock easily splitting into sheets or layers of the thickness of the scholar's slate, or into thicker layers when the slate is to be used for roofing, flagging, flooring, etc. The color of the slate varies, being of a blueish, greenish, or purple color. Besides the clay solidified by *Nature*, there are many varieties which we solidify by *artificial* processes. Among the most important of these are *China* clay, or *kaolin*, used for

the manufacture of porcelain ; *potters'* clay, for the manufacture of earthern ware ; *pipe* clay, a pure variety of potter's clay, *common* clay, for the manufacture of brick ; *fire* clay for fire brick and crucibles ; a clay called *fullers' earth*, used among other purposes, in factories for scouring and fulling woolen cloths, etc. But besides beds of clay, more or less extensive, we also find it *intermixed* with the humus, sand and gravel of the soil. Clay has a great retentiveness for water—hence, in very dry countries where but little rain falls, a clayey soil is much more fertile. Also a soil containing much sand becomes increased in fertility by the admixture of clay ; because the sand is itself dry, and allows water falling upon it to filter through, and hence not enough moisture is retained for vegetation ; but a proper proportion of clay intermixed with sand retains sufficient moisture for vegetation, and the clay itself constituting a very nutritious plant-food, we thus have a fertile soil. Too large a proportion of clay, however, is not favorable to the growth of plants, because it is so solid and compact that the roots of the plants cannot easily penetrate it, and thus grow and develop a sufficient amount of root-surface to absorb food enough for the nutriment of a large plant. The fertility of the soil depends not alone upon its *composition*, but also upon its *chemical* condition and the chemical action or processes taking place within it. The plant derives some of its food from the atmosphere, some from the soil ; and it is as impossible for it to live without the latter as witout the former. The plant derives its food from the soil through its roots ; and as the roots can only absorb water, all the nutritive elements of the soil must be dissolved in the water before the plant can take them into itself as food. This solvent action of nutritive elements is effected in part by chemical processes. Since water is the medium by which the plant-food of the soil is transmitted to the vegetable organism, a soil destitute of water is, of course, barren. The great deserts of the world are not sterile because they cannot yield the plant-food necessary to vegetation, but because they are destitute of water to transmit the food from the soil to the plant ; and wherever in the desert we find a spring, there, too, we find a spot of verdure, notwithstanding the constant sunshine and parching winds.

Land Considered as Garden, Field, Meadow and Forest: Its Animal Life.—How many of you live in houses with gardens belonging to them? What is planted in them? With what are they fenced or enclosed? Gardens planted principally with flowers, shrubs and ornamental trees, are called *ornamental* gardens. We also hear of *botanical* and *zoological* gardens. Who will tell me what is meant by such? What would you call a place devoted to the cultivation of peas, beans, celery, salad, and strawberries and other kinds of berries? What name would you give to an enclosure filled with apple trees, cherry trees, plum trees, peach and other fruit trees?

In riding through the country we see land planted and cultivated on which are growing chiefly corn, wheat, rye, oats, etc. What name is applied to such places?

If only grape vines are found, what name?

What is a *meadow?* A *forest?*

What do we mean by *grazing* land?

What animals live in our gardens, fields and forests?

All ground which is planted and tilled is called *cultivated* land; what it produces is called the *crop*. That which grows without cultivation is said to grow wild.

Man cultivates the earth, dressing it with verdure, as he clothes himself with raiment; nature, with wild vegetation clothes the earth, as she does most of the animal kingdom; as we vary the color of our clothing, so the fields and trees, at different seasons, put on different colored robes, as the grain field that exchanges its green dress of Spring for a golden colored one in Summer; and in cold countries nature wraps the earth in an ermine-like mantle of snow.

Neighboring Waters.—We have already learned that the water of the pools and puddles of the street evaporates again after the rain. In this manner a large quantity of water becomes converted into vapor. This aqueous vapor ascends into the atmosphere, there forming *clouds*. These do not remain stationary, but are driven hither and thither by the winds. They are sometimes white, sometimes black, sometimes grey. When the clouds have become saturated to a certain degree with moisture, the latter forms into drops and falls as rain. If very cold, the drops freeze and descend in the form of hail or snow.

All of the rain which falls does not evaporate. Much of it soaks into the earth, falls into the clefts and fissures of rocks, and seeks an outlet for itself at the foot of hills and mountains. Such an outlet is called a *spring.*

From the springs the water flows onward in little brooks and streams. These streams do not flow in a straight line, but follow usually a winding course. As the streams flow onward they unite with other streams, and together they finally form rivers. Smaller rivers flowing into a large river are called its branches. The commencement of a river is called its source. The place where it empties its waters into another body of water is called its mouth. Which is higher, the source or the mouth of a river? The difference in height between the mouth and the source is called the *fall* of the river.

Where the fall is slight the water flows slowly; where great, rapidly. Where the water falls suddenly from a greater to a less height, it forms *falls.* The ear distinguishes falls by the rushing sound. Are rapids and falls favorable for navigation? For mill wheels? Sometimes the river becomes swollen, either from long rain storms or from the melting of ice on the shores or inland; the river then flows more quickly, and a river which at other times is safe then becomes dangerous to sail upon. When a river becomes so swollen as to overflow its banks, we call this overflow a *flood.*

A river upon which vessels can sail is called a *navigable* river. Rivers are usually navigable a part of their course only. We speak of a vessel *ascending* and *descending* a river. Which is easier? Why? We also speak of a *favorable* wind and an *unfavorable* wind; a *fair* wind and a *foul* wind. Describe to me what a fair wind would be. A foul wind.

We have spoken of the water of rivers and brooks as running water. But there are also bodies of water which are not called running water. These we name ponds, lakes and seas. Some are natural, some artificial. The greatest of all bodies of water which may not be called running water is the *ocean.*

There are also places where the water cannot be seen, but where the earth is so saturated with it that it rises at every step we take upon it. These are called *swamps.*

Places in the Vicinity of San Francisco.—This may be an ex-

ercise connected with map drawing. First let a square be drawn representing the part of the city which is chiefly built upon. Fixing the location of the City Hall by a point, making the latter the center of a circle, draw its circumference, which shall represent a radius of two miles; then another representing a radius of three miles. Within these two circles locate places between two and three miles distant from the City Hall; afterwards add circle after circle, carefully indicating in each intermediate space the places to be noticed. Additional spaces should be drawn only when the pupils have already become so familiar with the nearer ones that they can readily sketch the circles and locations, noting the number of miles distant and comparing directions. Extend this exercise so as to include Yerba Buena, Alcatraz, Angel Island, Lone Mountain, Seal Rock, Farallones, Saucelito, Oakland, Alameda, San Leandro, etc.

Lines of Communication between San Francisco and Other Places.—As San Francisco is situated on a peninsula, nearly surrounded by deep water, it is natural that the communication with other places should be maintained more by water than by land. Hence, we find as yet but one railroad from the city, while there are many lines of steamers. The Southern Pacific Railroad has its depot in the city. The road extends southward from San Francisco, and in a southeasterly direction through San Mateo and Santa Clara counties. It connects San Francisco with San Mateo, Redwood City, Santa Clara, San Jose, Gilroy, and intermediate places.

The water communication is maintained by ferries, bay and river steamers, and ocean steamers.

By *ferries* we have communication with Oakland, and thus with the Central Pacific Railroad—with Alameda, San Quentin, Saucelito, Alcatraz, and Yerba Buena Island.

The *bay* and *river* steamers connect San Francisco with Benicia, Martinez, Vallejo, Petaluma, Sacramento, Stockton, and other places.

The lines of *ocean* steamers connect southward with Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, San Pedro—which connects by railroad with Wilmington and Los Angeles, whence stages connect with all parts of Southern California and

Arizona—San Diego, Manzanillo, Acapulco, Panama, and other places.

Northward with Tomales, Crescent City, Umpqua River, Portland, Victoria, Sitka, etc.

Other lines connect with Honolulu, Australia, Japan, China and India.

ON THE GROWTH OF AMERICAN EDUCATION.

Judging by the experience of foreign countries, and by the rapid progress of our own, we may presume that it will not be long before we shall see some such development of our systems of education as this :

I. A very limited number of universities, certainly one, probably several, possibly many, in which all the studies of a university may be well pursued, to which young men will resort for the highest sort of scholastic training, and to which they should be refused admission, unless they have previously been well trained for a considerable period in the institutions of the next lower or collegiate grade.

II. A division of our colleges, doubtless hundreds in number, into two sorts : those of Letters, and those of Science. In the former, the training will be chiefly linguistic and historical, with a considerable amount of pure mathematics, and a general introduction to chemistry and geology, and perhaps other branches of natural science. In the latter, the instruction will be largely in the mathematics, and in the exact sciences of observation and experiment, while linguistic training, especially in the modern languages, and historical studies, will not be overlooked.

In the colleges of science of this grade professional or technical instruction will be likely to predominate over studies of a purely disciplinary character. In the college of letters the reverse is sure to be the case.

III. A double course in academies and high schools—the one leading, by the discipline of Greek and Latin, to a classical college ; and the other, by the discipline of the pure mathematics (algebra, geometry, and trigonometry), to the scientific colleges. Both of these courses will admit of modifications, ac-

cording to circumstances, for scholars who may not expect to go up to the higher colleges.

IV. Decided improvements in our elementary public schools, in which the eye, the hand, and the ear shall all be trained to help the intellect in acquiring and imparting knowledge; improvements which can be largely secured by teaching the child to observe and investigate the phenomena of nature.—*President D. C. Gilman.*

HOW PLANTS PURIFY THE AIR.

Plants gain their nourishment by the absorption through their roots of certain substances from the soil, and by the decomposition, through their green portions, of a particular gas contained in the atmosphere—carbonic-acid gas. They decompose this gas into carbon, which they assimilate, and oxygen, which they reject. Now, this phenomenon, which is the vegetable's mode of respiration, can only be accomplished with the assistance of solar light.

Charles Bonnet, of Geneva, who began his career by experimenting on plants, and left this attractive subject to devote himself to philosophy, only in consequence of a serious affection of his sight, was the first to detect this joint work, about the middle of the eighteenth century. He remarked that vegetables grow vertically, and tend toward the sun, in whatever position the seed may have been planted in the earth. He proved the generality of the fact that, in dark places, plants always turn toward the point whence light comes. He discovered, too, that plants immersed in water release bubbles of gas under the influence of sunlight. In 1771, Priestley, in England, tried another experiment. He let a candle burn in a confined space till the light went out—that is, until the contained air grew unfit for combustion. Then he placed the green parts of a fresh plant in the enclosure, and at the end of ten days the air had become sufficiently purified to permit the relighting of the candle. Thus he proved that plants replace gas made impure by combustion with a combustable gas; but he also observed that at certain times the reverse phenomenon seems to result. Ten years later the Dutch physician Igenhousz succeeded in explaining this apparent contradiction. "I had but just begun experiments," says the skilled naturalist, "when a most interesting scene revealed itself to my eyes: I observed that not only do plants have the power of clearing impure air in six days or longer, as Priestley's experiments seem to point out, but that they discharge this important duty in a few hours, and in the most thorough way—that this singular operation is not due at all to vegetation, but to the effect of sunlight: that it does

not begin until the sun has been some time above the horizon ; that it ceases entirely during the darkness of night ; that plants shaded by high buildings, or by other plants, do not complete this function—that is, they do not purify the air, but that, on the contrary, they exhale an injurious atmosphere, and really shed poison into the air about us ; that the production of pure air begins to diminish with the decline of day, and ceases completely at sunset ; that all plants corrupt the surrounding air during the night, and that not all portions of the plant take part in the purification of the air, but only the leaves and green branches."—*Popular Science Monthly.*

EDUCATING GIRLS.

Educating girls for household duties ought to be considered as necessary as instruction in reading, writing and arithmetic, and quite as universal. We are in our houses more than half of our existence, and it is the household surroundings which affect most largely the happiness or misery of domestic life. If the wife knows how to "keep house," if she understands how to "set a table," if she has learned how things ought to be cooked, how beds should be made, how carpets should be swept, how furniture should be dusted, how clothes should be repaired, and turned and altered and renovated ; if she knows how purchase can be made to the best advantage, the laying in of provisions, how to make them go farther and last longest ; if she appreciates the importance of system, order, and tidiness, and the quiet management of the children and servants, then she knows how to make a little heaven of home—how to win her children from the street; how to keep her husband from the club-house, the gaming-table and the wine-cup. Such a family will be trained to social respectability, to business, and to efficiency and usefulness in whatever may be alloted to them.

It may be safe to say that not one girl in our large towns and cities enters into married life who has learned to bake a loaf of bread, to purchase a roast, to dust a painting, to sweep a carpet, or to cut, fit and make her own dress. How much the perfect knowledge of these bears upon the thrift, the comfort and health of families, may be conjectured, and not calculated by figures. It would be an immeasurable advantage to make a beginning by attaching to every girls' school in the nation, and have lessons given daily in the preparation of all the ordinary articles of food and drink for the table, and how to purchase in the market, to the best advantage, with the result of a large saving of money, an increase of comfort, and higher health in every family in the land.

COURSE OF STUDIES FOR THE PUBLIC SCHOOLS OF CALIFORNIA.

[Adopted by the State Board of Education, February 11th, 1873, and required to be enforced July 1st, 1873.]

COURSE OF STUDIES FOR THIRD GRADE.

FOURTH DIVISION.

Reading, taught from McGuffey's Primary Charts (or Willson's Charts, where they are already in the school), and from McGuffey's First Reader to page 32. Word method to be used exclusively, according to instructions given in Calkins' *Object Lessons*, page 288, *et seq.* From the very first the proper phrasing of sentences to be attended to, and correct modulations of the voice to be cultivated. Phonic elements of words to be derived by analysis; the letters representing those elements to be pointed out and learned, and finally combined into new words. Punctuation marks, inflection marks, as far as they occur in the reading lessons.

Spelling.—A few words to be first learned by the word method, then the letters composing those words to be pointed out and learned. Words spelled as learned; printing the words of lessons at dictation. The minimum requirement is the ability to spell orally, or print at dictation any word occurring in the reading lessons.

Printing letters and words as learned, on slate and blackboard (using a long pencil on the slate that the pupil may hold it in the manner of a pen.) Printing words at dictation.

Arithmetic.—Clear and ready perceptions of numbers from one to ten to be developed with use of objects, and at every successive step all possible additions, subtractions, multiplications, and divisions of integral numbers to be learned within each limit as it is reached.

Object Lessons.—First two weeks: *Form*, Calkins' *Object Lessons*, page 49 to 59. Second two weeks: *Color*, *ibid.*, page 112 to 118. Third two weeks: *Size and Weight*, *ibid.*, page 160 to 164, page 176 to 178. Fourth two weeks: *Sounds*, *ibid.*, page 183 to 188. Fifth two weeks: *Place*, *ibid.*, page 245 to 246. Review. The rest of the session or term, *Lessons on Human Body*, as given in the *Manual*, alternating with *Lessons on Objects*, Calkins' *Object Lessons*, page 298, *et seq.*, and Sheldon's *Lessons on Objects*, page 20 to 46. Parts, names, and number of parts.

Language.—The pupil to be required to answer and speak in complete sentences. Spontaneous expression of the pupil's thoughts to be encouraged. Systematic correction of common faults in the use of language to be commenced in this, and continued through all succeeding divisions.

THIRD DIVISION.

Reading.—McGuffey's Charts and First Reader completed. Continued drill upon the phonic elements of words; phonic spelling of all words used in the Reader. Silent letters, long and short vowels, their marking. Punctuation marks, and inflection marks, as they occur in reading lessons.

Spelling, oral, written, and phonic of all words occurring in the reading lessons. The minimum requirement is the ability to spell orally, or write at dictation any word occurring in the reading lessons.

Arithmetic.—Exercises, mental and written, in addition, subtraction, multiplication, and division of numbers from ten to twenty-five, in continuation of the work laid down for the preceding division. Clear and ready perceptions of numbers from ten to one hundred, to be developed with use of objects.

The child having obtained clear perceptions of the numeration of tens, the same work must be performed upon them, which, in the preceding division was performed upon units, but with this difference: that while tens are to be added to tens, or subtracted from tens, they are to be multiplied or divided by no number exceeding nine.

Writing, reading lessons on slate and blackboard. Minimum requirement to write at dictation any word or paragraph of reading lesson. Capitals and small letters.

Object Lessons.—First two weeks: *Form*, Calkins' *Object Lessons*, page 60 to 74, excepting lesson VI. Second two weeks: *Color*, *ibid.*, page 118 to 134. Third two weeks: *Size* and *Weight*, *ibid.*, page 165 to 173, 179 to 181. After this, lessons on objects, alternating with lessons on animals and plants, as prescribed in special instruction given in *Manual*. Names, position and uses of parts.

Composition.—At first merely imitative. Copying words and sentences printed on the blackboard by the teacher. Use of period at end of every sentence, and use of capital in first word of every sentence. The children are to be encouraged to write sentences of their own as soon as the number of words learned will permit. Just as soon as a few names of objects, a few words expressive of quality, and a few words of action are learned so that they can be read and written, let such objects be exhibited and such actions performed in the presence of the child as shall require, in description or narration, the use of the words learned. Great care must be taken not to make these exercises so difficult as to discourage the children. Spontaneous efforts, even the rudest, should be freely praised.

Geography.—Special local geography, as per instruction in *Manual*. Part of object lessons.

SECOND DIVISION.

Reading.—McGuffey's Second Reader begun and completed. Phonic exercises as given in Reader. Words and consonants; their markings. Punctuation marks finished. Abbreviations as they occur in reading lessons. Distinction between Roman letters and italics; words and syllables; prose and poetry.

Spelling.—All words occurring in reading lessons to be spelled by sound, and by letter orally and in writing. Minimum requirement to spell orally or write at dictation any word or paragraph of the reading lessons. The pupils should be able to spell and to write the names of the days of the week, and, as they occur, the months of the year.

Writing.—Reading lessons on slate and blackboard. *Elements* and *principles* of letters from Payson, Dunton & Scribner's Charts, or from instructions from the copy-book covers, or from P. D. & S.'s *Manual*.

Arithmetic.—Exercises in notation and numeration to 1,000. Exercises, mental and written, in addition, subtraction, multiplication and division of numbers within 100, the sum or product in no case to exceed 100. In addition, subtraction and multiplication, the units to be added, subtracted or multiplied first; then the tens; principles of carrying forward and borrowing illustrated. In division, the tens to be divided first, then the

units. Multiplier and divisor not to exceed nine. Same operations to be performed upon 100's as performed in preceding divisions upon units and tens. Ideas of vulgar fractions to be developed, notation of same to be taught to ninths. Same operations upon these fractions as upon the numbers from 1 to 10 in the Fourth Division of this grade. Roman numerals to C. Robinson's Progressive Primary Arithmetic to page 42, at option of teacher.

Object Lessons.—Lessons on harmony of colors, etc. See Willson's *Manual*, page 92, *et seq.*, and Calkins' *Object Lessons*, page 105 to 111. Lessons on *Form*, Calkins', page 74 to 93, and Lesson VI, page 66. Lessons on objects continued. Lessons on animals and plants, as per instruction in *Manual*. Description of parts.

Composition.—Writing sentences containing given words. Pupils to describe the pictures in their Reader, and to be encouraged to tell what they show. Short descriptions derived from these pictures and from object lessons. Accounts of things done. Every child in this division should be able to write his own name, the name of his teacher, and of the nearest postoffice. Systematic exercise in the use of *have, do, be, see*, and in correction of common faults in the use of the same. The work of the term or year should make the pupil acquainted with the use of the capitals for the pronoun I, and in the beginning of sentences, in the names of persons, days of the week, the month; also, the use of the period and the interrogation mark.

Geography.—Higher local geography as per instruction in *Manual*.

FIRST DIVISION.

Reading.—McGuffey's Third Reader begun and completed. Exercises as given in preceding division.

Spelling.—All words of reading lessons to be spelled by sound, and by letter orally and in writing. Particular attention paid to the writing at dictation of paragraphs of reading lessons.

Penmanship.—Reading lessons written on slate and blackboard. Numbers one and two, copy books, Payson, Dunton & Scribner's Series. Instructions on the copy book cover, and in Payson, Dunton & Scribner's *Manual*, to be followed strictly.

Arithmetic.—Numeration and notation to millions. Exercises in addition and subtraction. Multiplication and division of numbers to 1,000,000, multiplier and divisor not to exceed 9. Reduction of mixed numbers to improper fractions, and the contrary. Division of fractions having 1 for numerater by whole numbers (divisor not to exceed 9) illustrated objectively. Roman numerals finished. Robinson's Progressive Primary Arithmetic, finished, at option of teacher.

Object Lessons.—Lessons on animals and plants, as per instruction in *Manual*. Characters of families.

Composition.—Writing sentences containing words selected from the reading lessons. Descriptions derived from object lessons and pictures. Narration of actions performed by the teacher and by the pupils under the direction of the teachers. Punctuation marks as needed.

Geography.—Higher local geography, as per instruction in *Manual*.

COURSE OF STUDIES FOR SECOND GRADE.

SECOND DIVISION.

Reading.—McGuffey's Fourth Reader to page 126, inclusive. Phonic and elocu-

tionary exercises as given in Reader. The four principal feet of poetry—Iambus, Troche, Anapest, and Dactyl—pointed out as they occur. Poetry to be scanned before being read.

Spelling.—From the reading lessons, as in preceding division; also spelling of all technical terms introduced in the several branches taught.

Penmanship.—Reading lessons written on slate. Numbers three and four copy books, Payson, Dunton & Scribner's Series. Instructions on copy book covers, and in P., D. & S.'s *Manual* to be followed strictly.

Arithmetic.—Numeration and notation of integers completed; numeration and notation of decimals so far as given in Robinson's *Rudiments of Arithmetic.* Long multiplication and division; reduction descending and ascending. Rudiments of Aritbmetic, to page 166, leaving out *Fractions*, page 74 to 101. Colburn's Intellectual Aritbmetic to section 6.

Object Lessons.—Lessons on animals and plants, as per instruction in *Manual.* Characters of orders.

Composition and Oral Grammar.—Writing sentences containing nouns, verbs and adjectives, and selecting the same from the Reader. Writing sentences predicating actions and qualities of given objects, selecting words from the Reader which denote action and quality. Predicating action in time past, present and future; introducing modifiers of the verb (adverbs) to tell where, bow and when. The adverb.—Selecting words from the Reader which denote action present, past and future. Composition based on object lessons and geography lessons. Use of punctuation marks.

Geography.—Monteith's Manual to South America and California and Pacific Coast. Map drawing on slate, blackboard and paper. Local geography continued.

FIRST DIVISION.

Reading.—McGuffey's Fourth Reader completed. Phonic and elocutionary exercises as given in Reader.

Spelling.—From reading lessons, and spelling of all technical terms introduced in the course of instruction.

Penmanship.—Payson, Dunton & Scribner's No. 5. Instruction on copy-book cover and in P. D. & S.'s *Manual.*

Arithmetic.—Robinson's Rudiments completed, including the portion omitted in the preceding division. Colburn's Intellectual to section 11.

Object Lessons.—Classification of animals and plants. Instructions in *Manual.*

Composition.—Exercises in narration. Descriptive exercises to be commenced. Geography lessons and object lessons will furnish abundant material. Letter writing. Use of punctuation marks.

Grammar.—Oral deduction of rules for changing nouns from singular to plural. Distinction between the forms of the adjectives denoting different degrees of quality. Subject and predicate to be introduced. Selection from the Reader of the parts of speech already introduced. Personal pronouns, conjunctions and interjections. Synthetic exercises, embracing modifications of subject and predicate, to be introduced as rapidly as the progress of the class will permit. Person and gender of nouns and personal pronouns.

Geography.—Monteith's Manual completed. Map drawing and use of globe continued.

COURSE OF STUDIES FOR FIRST GRADE.

SECOND DIVISION.

Reading.—McGuffey's Fifth Reader to page 168, inclusive. Elocutionary exercises as given in Reader.

Spelling.—From reading lessons. Swinton's Word Analysis to page 52.

Penmanship.—Payson, Dunton & Scribner's No. 7.

Arithmetic.—Robinson's Progressive Practical to Percentage. Colburn's Intellectual.

Physiology.—Oral instruction as laid down in *Manual*.

Natural Philosophy.—Oral instruction as per *Manual*.

Composition.—Narrative and descriptive exercises extended. Letter writing from pupil to pupil, pupil to teacher, and pupil to parents and absent relatives on the business and lessons of the school. Manner of addressing letters.

Grammar.—Synthetic exercises; the subject modified by words and phrases. The predicate modified by the same. The adjective and adverbial element to be modified. The verb—transitive and intransitive. The objective element. Introduction of case. Regular and irregular verbs. The clause to be introduced. Selections from the Reader of all the parts of speech. Verb—active, passive and neuter. Tense. Analysis of simple sentences. The subject a word, phrase and clause; the predicate a noun, an adjective, a verb. Use of Brown's First Lines of English Grammar, to page 74, at option of teacher.

Geography.—Monteith's Physical and Intermediate. Map drawing. Specimen maps monthly.

History of United States.—Swinton's Condensed, to Revolutionary War. Short Lessons on the Constitution of the United States.

FIRST DIVISION.

Reading.—McGuffey's Fifth Reader completed. Elocutionary exercises as given in Reader.

Spelling.—Spelling from reading lessons as in preceding divisions. Swinton's Word Analysis finished.

Penmanship.—Replaced by Hanaford and Payson's Bookkeeping by Single Entry.

Arithmetic.—Robinson's Progressive Practical and Colburn's Intellectual completed and reviewed.

Physiology.—Oral, or at option of teacher, Cutter's First Book begun and completed.

Natural Philosophy.—Oral, or at option of teacher, Hotze's First Lesson in Physics.

Composition.—Narrative and descriptive exercises extended. Business letters may take the place of other letters.

Grammar.—Brown's First Lines completed.

Geography.—Monteith's Physical and Intermediate reviewed and completed. Map drawing. Specimen maps monthly.

History of the United States.—Swinton's Condensed completed. Constitution of the United States and of California.

COURSE OF STUDIES FOR THE ADVANCED GRADE.

THIRD DIVISION.

Reading.—McGuffey's Sixth or High School Reader begun.
Arithmetic.—Robinson's Higher completed.
Algebra.—Robinson's New Elementary begun.
Geometry.—Robinson's Separate begun.
History.—Worcester's General begun.
English Composition.—Bonnell's begun.
Physiology.—Cutter's Larger begun.
English Grammar.—Brown's Institutes begun.
Natural Philosophy.—Quackenbos' begun.
Botany.—Gray's Manual begun.
Rhetoric.—Boyd's begun.
Bookkeeping.—Hanaford & Payson's Single Entry finished. Double Entry begun.

SECOND DIVISION.

Reading.—McGuffey's Sixth or High School Reader completed.
Algebra.—Robinson's New Elementary completed.
Geometry.—Robinson's Separate completed.
History.—Worcester's General completed.
English Composition.—Bonnell's completed.
Rhetoric.—Boyd's completed.
English Literature.—Collier's begun.
Botany.—Gray's Manual completed.
Bookkeeping.—Hanaford & Payson's Double Entry completed.
Chemistry.—Steele's begun.
Mineralogy.—Comstock's begun.
Astronomy.—Loomis' begun.
Latin and Greek.—(Optional) begun.

FIRST DIVISION.

English Literature.—Collier's completed.
Mental Philosophy.—Upham's begun and completed.
Chemistry.—Steele's completed.
Mineralogy.—Comstock's completed.
Astronomy.—Loomis' completed.
Surveying.—Robinson's begun and completed.
Plane Trigonometry.—Robinson's begun and completed.
Natural History.—Tenney's begun and completed.
Latin and Greek.—(Optional) continued.

To the above Course of Studies are to be added for the different divisions of the several grades, *Drawing*, *Music*, *Calisthenics* and *Morals* and *Manners*. The course for *Music* and *Drawing* is not yet completed. The course in drawing will be based upon "Industrial Drawing for Beginners; Free Hand"—published lately by James

R. Osgood & Co. The course in music will be based upon Mason's Manual. *Calisthenics* and *Morals* and *Manners* are to form, as much as possible, simultaneous exercises for the whole school. As will be seen from the proceedings of the State Board of Education, a committee was appointed to prepare a *Manual* to accompany the Course of Studies. In this *Manual* all necessary instructions will be given to teach the several branches called for by the course. It will be several months before the *Manual* can be printed. At the proper time County Superintendents will receive a full supply of copies of the *Manual*, so that every teacher may receive one of them. Teachers must look to County Superintendents, and not to us, for their copies.

DEPARTMENT OF PUBLIC INSTRUCTION.

OFFICE OF CONTROLLER OF STATE,
SACRAMENTO, Cal., March 1st, 1873.

Hon. H. N. BOLANDER, *Superintendent of Public Instruction:*

SIR: In accordance with an Act of the Legislature, I have the honor to report as follows: The securities belonging to the School Fund held in trust by the State Treasurer, consist of bonds of the State of California, bearing interest at the rate of seven per cent. per annum, and amount to one million two hundred and three thousand five hundred dollars ($1,203,500). The statement showing the moneys in the State Treasury, subject to apportionment and the sources from which the same were derived, is as follows:

Derived from poll taxes	$74 21
Interest on School lands	39,950 72
Interest on bonds held in trust	42,122 50
Property tax (four cents eight mills on each one hundred dollars)	208,773 07
Subject to apportionment	$290,920 50

Very respectfully, JAMES J. GREEN, Controller.

APPORTIONMENT.

Total number of census children between five and fifteen years of age entitled to receive school money, 137,351; amount per child, $2 11.

Alameda County, total, 6,496; nmount, $13,706 56. Alpine, total, 103; amount, $217 33. Amador, total, 2,097; amount, $4,424 67. Butte, total, 2,623; amount, $5,534 53. Calaveras, total, 2,252; amount, $4,751 72. Colusa, total, 1,633; amount, $3,445 63. Contra Costa, total, 2,488; nmount, $5,249 68. Del Norte, total, 315; nmount, $664 65. El Dorado, total, 2,395; nmount, $5,053 45. Frosno, total, 925; nmount, $1,951 75. Humboldt, total, 1,939; amount, $4,091 29. Inyo, total, 259; amount, $546 49. Kern, total, 459; amount, $968 49. Klamath, total, 258; nmount, $544 38. Lake, total, 1,000; amount, $2,110. Lassen, total, 440; amount, $928 40. Los Angeles, total, 6,173; amount, $13,025 03. Marin, total, 1,502; amount, $3,169 22. Mariposa, total, 875; amount, $1,846 25. Mendocino, total, 2,470; nmount, $5,211 70. Merced, total, 908; amount, $1,915 88. Mono, totnl, 87; amount, $183 57. Monterey, total, 3,449; amount, $7,277 39. Napa, total, 2,068; amount, $4,363 48. Nevada, total, 4,179; amount, $8,817 69. Placer,

total, 2,229; amount, $4,703 19. Plumas, total, 700; amount, $1,477. Sacramento, total, 5,622; amount, $11,862 42. San Bernardino, total, 1,583; amount, $3,340 13. San Diogo, total, 1,407; amount, $2,968 77. San Francisco, total, 31,936; amount, $67,384 96. San Joaquin, total, 4,879; amount, $10,294 69. San Luis Obispo, total, 1,404; amount, $2,962 44. San Mateo, total, 1,908; amount, $4,025 88. Santa Barbara, total, 2,301; amount, $4,855 11. Santa Clara, total, 6,436; amount, $13,579 96. Santa Cruz, total, 2,696; amount, $5,688 56. Shasta, total, 1,277; amount, $2,694 47. Sierra, total, 1,009; amount, $2,128 99. Siskiyou, total, 2,250; amount, $4,747 50. Solano, total, 3,778; amount, $7,971 58. Sonoma, total, 6,127; amount, $12,927 97. Stanislaus, total, 1,508; amount, $3,181 88. Sutter, total, 1,313; amount, $2,770 43. Tehama, total, 1,148; amount, $2,422 28. Trinity, total, 508; amount, $1,071 88. Tulare, total, 1,514; amount, $3,194 54. Tuolumne, total, 1,912; amount, $4,034 32. Yolo, total, 2,101; amount, $4,433 11. Yuba, total, 2,412; amount, $5,089 32.

HENRY N. BOLANDER,
Superintendent of Public Instruction.

THE STATE BOARD OF EDUCATION

Met at the office of the Superintendent of Public Instruction, February 17th, 1873, at 3 o'clock, P. M.

Present—Dr. Lucky, Messrs. Leadbetter, Lynch, Jackman, Baker, and Bolander.

Absent—Governor Booth, Messrs. Jones and Widber.

In the absence of Governor Booth, Superintendent Bolander called the meeting to order, and moved that Mr. Baker take the chair. Adopted.

The minutes of the meeting of December 13th, 1872, were read and approved.

On recommendation of the State Board of Examination, life diplomas were granted to the following persons:

W. J. Gorman, of San Francisco;
A. Herbot, San Francisco;
J. A. Hudson, of Santa Clara County;
W. C. Hunt, of Santa Clara County;
Miss A. H. Hill, San Francisco;
Miss A. A. Rowe, San Francisco;
C. H. Crowell, of Santa Clara County;
John A. Chesnutwood, of Mariposa Co.

On motion, the life diploma granted at the last meeting to Freeman Gates, since deceased, was directed to be sent to his widow.

On motion of Dr. Lucky, Mr. Jackman was added to the Committee on the Revision of the Course of Studies.

Superintendent Bolander, from the Committee on the Revision of the Course of Studies, presented a report which was received and read. The course was taken up in detail and debated at length. The final consideration was postponed till the evening session.

C. T. Hopkins, at his own request, appeared before the Board and presented for their opinion his "Manual of American Ideas." He argued for its introduction into the public schools of California, and read liberally from the work, and from recommendations of prominent educators and others to show its importance. Without taking any action, the Board at 5:30 P. M. adjourned to meet at half-past 7 o'clock.

EVENING SESSION.

Meeting called to order by the Chairman, Mr. Baker, at 7:30 P. M.

Further consideration of the revised Course of Studies, submitted by the Committee, was resumed, the course discussed in detail and accepted.

On motion of Mr. Jackman, it was ordered that the new course of studies must be introduced into the public schools of California on or before the first day of July, 1873.

On motion of Mr. Bolander, it was resolved that all the books, maps, charts, and apparatus to be used in the course of studies be added to the list of library books, and that the Trustees of each school district be requested to purchase a complete set of the same for the library and for the use of teachers.

On motion of Superintendent Bolander, the Committee on the Revision of the Course of Studies were instructed to prepare a manual to accompany the course of studies, and the State Superintendent was authorized to have the same printed when prepared.

On motion of Dr. Lucky, the Secretary was requested to give, in the future, at least two weeks' notice of proposed meetings of the Board.

On motion of Mr. Jackman, it was resolved that the Third Grade shall hereafter be divided into four divisions, and the Second and First Grades each into two divisions.

On motion of Superintendent Bolander, it was determined that those schools be of the Third Grade in which studies of the third grade are taught exclusively; those to be of the Second Grade in which no studies higher than those of the second grade are taught; those to be of the First Grade in which studies of the first grade are taught—pupils to be promoted on a percentage of seventy, obtained on examination by the County Superintendent.

On motion, at 12:55 the Board adjourned.

HENRY N. BOLANDER, Secretary.

STATE NORMAL SCHOOL.

THE next Session will commence on Wednesday, the 18th of June.

REPORT FOR FEBRUARY.—Senior Class, 23: Junior Class, 91. Total, 114. Children in attendance in training class, 42.

CALENDAR FOR 1873-'74.—First Term begins Wednesday, June 18th, 1873. First Term ends Thursday, October 23d, 1873. Fall vacation, one week. Second Term begins Wednesday, November 5th, 1873. Second Term closes Thursday, March 26th, 1874.

EDUCATIONAL TOUR.—The Principal of the Normal School expects to spend most of his next vacation in the southern counties of the State. He will visit the following counties at the times named, viz: San Diego, April 9th; Los Angeles, April 16th; San Bernardino, April 23d; Santa Barbara, April 30th; San Luis Obispo, May 7th; Tulare, May 13th. A week will be given to each county. The Superintendents will decide when and where he is to lecture.

EDITORS' TABLE.

IMPORTANT DECISION.—The Supreme Court of New York has decided that the Fourteenth Amendment of the Constitution of the United States does not prohibit boards of education from establishing separate schools for colored youths, inasmuch as this abridges no privilege of a citizen, since no citizen has the privilege of choosing the school in the city to which he will send his children. The Court adds:

"The relator has equal common school advantages with other citizens. He does not assert that the school which is open to him is not as good as the one which is closed. He does not pretend that there is anything in its position, its pupils, or its teachers, which makes the limitation of his children to that school a practical refusal to them of common school advantages. If the school which is open to his children were materially objectionable, or if it were an improper school for them to attend, a very different question might then arise."

This decision is substantially the same as the one given by the Supreme Court of Ohio a few months since. Both agree that the equality of right guaranteed by the Fourteenth Amendment does not imply that white and colored youth shall attend the same schools any more than it necessitates the attendance of the two sexes at the same schools—a view held by us from the first. What the amendment plainly guarantees is, that the two races shall be provided with *equal* public school advantages, and it is to be regretted that neither of these decisions unequivocally denies the right of school boards to maintain *inferior* schools for colored youth—an injustice much too common even in Ohio and New York. It is true that both decisions *imply* that the school advantages furnished must be equal; but something more than this is needed to correct the wrong.—*Ohio Educational Monthly.*

B. G. NORTHROP, President, gives notice that the Thirteenth Annual Meeting of the National Educational Association will be held in Elmira, New York, on the 5th, 6th, and 7th days of August, 1873. Free return tickets are already promised on the New York & Erie and other railroads centering in Elmira. A cordial invitation to hold the meeting in that city has been received, signed by the Mayor and Aldermen, and sixty-five prominent citizens, including judges, editors, presidents of banks, clergymen, lawyers, and the officers of Elmira College. A warmer welcome was never promised to the Association. No effort will be spared to render this meeting interesting and profitable. A large attendance is anticipated. Details as to hotel and railroad facilities, topics and lectures, will be seasonably given.

NEW EDITOR.—We are pleased to notice that B. F. Tweed, Superintendent of the Charlestown Schools, has taken editorial charge of the *Massachusetts Teacher.* Mr. Tweed is an able educator, and a right jolly fellow, as General Eaton, General Oliver, and a company of pedagogues that went "a fishing" near the "city of witches" last Summer can testify. May his friends never grow fewer nor his smiles grimmer.

NEW YORK has *eight* State Normal Schools in full blast; Massachusetts, four. There are 1,000 embryo teachers in the New York City Normal College for young ladies.

AN ABLE REPORT.—The last Biennial Report of Newton Bateman, State Superintendent of Illinois, is one of the ablest reports ever published in the United States. Superintendent Bateman discusses interesting points concerning the new school law of Illinois, and treats of the defects in common school instruction with the hand of a

master. The report embodies the very able address of Mr. Bateman on *Compulsory Education*, read before the National Association at Boston. We have marked some extracts for future use.

PERSONALS.—C. H. Kimball, formerly of Nevada County, has been elected Principal of the Los Angeles Grammar School. He is an earnest and a capable teacher..... Professor A. G. Brown, recently from Kentucky, has been elected Principal of the Los Angeles High School, and also City Superintendent of Schools. Mr. Brown is an experienced educator, an able writer, a fluent speaker and a progressive man..... George Brown, formerly of Hornitos, and recently Principal of the Alvarado Grammar School, is now engaged in the San Francisco schools. Mr. Brown is a thorough teacher. His hard-headed Scotch sense and his finished education give him a rare combination of qualities that go to make up a true teacher.....Professer Schultz, recently from Pennsylvania, has taken a school near Rio Vista.....He adds one to the first class teachers in the State.....Joseph Leggett has been appointed *examining teacher* in San Francisco.....John Bagnall, County Superintendent of Alpine County, is teaching an evening class and a day class in the public schools of San Francisco. Mr. Bagnall's evening class is a model one, and his day class is pleasant to visit. His old friends in the State will be glad to learn that his earnestness and enthusiasm in teaching are fully recognized. He looks ten years younger than he did when he was migrating from one country district to another. .....Mr. Lighthall is paid by the Trustees of Orchard Street District $125 a month. The school is small, but the Trustees have good sense and don't believe in *cheap* teachers.....B. J. Watson has gone back to the Forest Springs District in Nevada County. The Trustees pay him and his wife $200 a month for teaching their school. Such extravagance would break the hearts of some people we know of.....Colonel McKowan, Vice Principal of the Union School, San Francisco, has resigned for the purpose of going to Europe. He is a gentleman of high culture, genial and pleasant, and we hope his shadow may never grow less. William White, formerly of Watsonville, takes his place.....Professor George Tait, formerly of the Brayton College School, intends to take a trip with his family to the East and to Europe. .....Professor Templeton, formerly Principal of the Sacramento High School, is located at Woodland.....A. H. McDonald has made the Sacramento evening schools a success. There are now four well filled classes.....Mr. Dwyer has been elected teacher of the Ocean House School, San Francisco.....James Robertson has been appointed Principal of the Industrial School. He is just the man for the place. The school is in excellent condition. Salary paid $2,400 a year, in addition to board ann washing. The Supervisors are tired of cheap teachers.....H. C. Kinne, well known in the interior, not liking the practice of law, has returned to his first love. Mr. Kinne manages what is called a "reform class" in the Lincoln Building. It is a class made up of hard-headed boys who make trouble for lady assistants in the various classes throughout the city. Mr. Kinne makes it a *model* class, and we are sure that teachers visiting our city schools will learn something by dropping in to see the "model class."..... Mrs. Benton is making a revolution in the way of drawing in the primary classes. Their progress is really remarkable. Reason—the application of common sense and enthusiasm to the work..... Superintendent Campbell, of Oakland, has had his salary raised to $2,500 a year. On the strength of this liberality, Mr. Campbell proposes to give a thorough oral examination to every class in the city.

THE

CALIFORNIA TEACHER.

MAY, 1873.

VOL. X. SACRAMENTO. No. 11.

[*For the California Teacher.*]

A SCHOOLMASTER'S DAY—SUNDAY.

If this were Saturday, the last day of the seven, the day of rest, it would be the time for turning off from the dusty road, and stretching one's tired bones on the grass, without a thought of work; unless it might be some languid looking backward through the week, some useless self-reproach or gratulation, or a sigh of relief that another week's duties were left behind. But this is Sunday, the sunrise-day, the first of the seven, the morning of the new week. It is a day for forgetting the things which are behind, and for climbing up to some higher ground to survey the pathway ahead. It is the time to get such a bird's-eye view of one's surroundings, that some plan of the best route can be made.

Not that I would waste such a precious interval of tranquil outlook in planning the details of my journey. Under the pressure of the present necessity, when the actual moment comes, that can be better done. To arrange beforehand just how this or that difficulty is to be met, to decide whether it will be best to follow the bed of the stream or take the chapperal, would be useless. The general direction is what I need to see. Yonder the trail should wind; through that shadowy cañon; round the foot of the cliff; over that brightening hill.

Once a week, at least, a teacher must leave the small details below him, to stand on the heights and survey his work in the large. Otherwise, however conscientious and scrupulous he

may be in the machinery of the school, he makes enormous blunders in the general plan. How often do we weary our scholars and ourselves in struggling to work them through thick places where we never ought to have been, as a half hour's cool planning at the outset would have shown. Nor is that the worst of it: for the want of that preliminary view, a hundred treasures were left untouched that lie directly in our proper way.

What, then, do I want to accomplish in school? That question I must keep before me constantly, and have ready a very definite answer to it. How can one take any wise means unless the desired end is clearly seen? It would be well if at every recitation some sudden visitor would put his head in to enquire: "Exactly what are you trying to do at this particular minute, and why?"

We call ourselves teachers. There is a lower and a higher office implied in the word. The lower one consists in causing children to know certain things before unknown. The higher one consists in having their faculties develop themselves. (Some vague misunderstanding of this latter shows itself in the flattering vulgarism of the patent blackboard men who are fond of addressing us as "educators.") Two branches, then, my object includes—first, to have the children know; second, to have them be and do.

As to the former—the lower office—what things am I to help them know? Are there only a few subjects on which they are to be informed, or is it for me to teach them, so far as I can, everything that is known on earth? Obviously the latter would be desirable, but the only hope for short lived mortals, in a world where so many things are known, is to take the objects of knowledge in order, and just in their proper order.

Then I am to teach my scholars of such and such a grade only a limited set of things? Not so very limited. Doubtless I am not to dip here and there, giving a smattering taste of a thousand subjects, while neglecting the orderly laying of solid foundations. The digestion is not to be stimulated by all sorts of things before it has been strengthened by just the right things. Nevertheless a vast field lies in my immediate province. By judicious selection, by daring to omit a mass of useless rubbish, they may have time to be informed on very many important subjects. I am not to rest or to let them

rest satisfied so long as they are ignorant of any important thing which, at their stage of development, they ought to know. More than that, they must now and then have swift glimpses, sudden and tempting, of all which they ought to want to know.

Three things, then, I must give the boys and girls as their knowledge-teacher—first, freedom from learning a distressing amount of rubbish; second, a vast number of important truths; third, a hunger and thirst for more.

Secondly, in teaching them to do and be (we do, only by virtue of what we are; we are, only by virtue of what we do), that is, as their wisdom-teacher, just what am I trying to accomplish?

Are the children to be trained in a few directions only, or am I aiming to have them develop all their faculties? If the former, which direction? Shall the boys be trained into money-makers, name-makers, inventors, office-getters, or what? Shall the girls grow into artists, lecturers, kinder gardeners, poets, parlor-ornaments, or kitchen-maids? Which faculty shall be sharpened most, and what stone is the best to sharpen it on?

Is it not rather in having all their faculties go on growing together, each to that best possibility which can only come from harmony with all the rest, that my duty lies?

Just here I find myself knocking at the door where many have knocked but none been answered: What is the end of existence, the *summum bonum?* Tell me what we live for, and I shall know how we are to be trained.

But is it really necessary to answer this in order to teach my history class to-morrow morning? No, thank Heaven, else we were all adrift on a bottomless sea. In the very question lies its answer, so far as my duty is concerned. If this—"how shall we live and for what?"—is the great question, then the training which best fits one to answer it, by perfect thinking as the only revelation of perfect living, is the training which my boys and girls must have. For the life they were meant to live, they must first get the use of all the faculties they were meant to have.

Not money, then, not marriage, they shall be trained to get. In all fulness of every power, body and soul, they shall learn to be themselves.

What, then, are these human faculties for whose development I am responsible? No vague general answer will here help me. Let me take the body for illustration. It acts through definite bones, muscles, nerves, that lie just so and so, each with precisely this or that function, and precisely its own conditions of development. If my work in their physical training is to be anything but a ghastly sham, these functions and conditions I must exactly understand. 'Tis of no use to say to Arthur, who sits on his shoulder-blades, "be thou strong." I must set for him just that exercise which shall bring out the *multifidus* and the *erector spinæ*. 'Tis useless to tell Lizzie, who mumbles her words, to speak more distinctly. I must have her practice exactly those subvocals in which she fails. If Mattie's flaccid third finger drops here and there a note at the piano, it is for me to manage to have that divided tendon get its compensatory drill. If Harry slinks along the street, sagging at the knees, it is my business to know how much of the fault lies in the *rectus femoris*, and what proportion of foot-ball and independence will set it right.

It is a startling thought that this is just as true of the invisible sinews of the mind. It is startling when we think how many of us are pretending to train the minds of children, without the faintest conception of their separate faculties, or their modes of operation. It is as if a man should set up for a gardener without knowing the functions of roots, or buds, or seeds. It is as though some lunatic should offer to take charge of a great steamer's machinery without understanding the uses of a single lever or wheel, or without even a suspicion of their existence. It is as if for a jest some boy should stand at the leader's desk and attempt to direct a full orchestra without knowing one of all the separate instruments.

First of all, then, before venturing to go to my classes again, let me try to get before my mind some outline of the spiritual powers, whose culture and direction is committed to my hands. I see them, as I try to analyse the actions of the soul, in three groups—the intellect, with its thoughts; the sensibility with its feelings; the will, with its choices and commands.

By three faculties, or in three modes, the intellect acts—the observing power (whether perceiving one's self, in consciousness, or in perceiving through the senses): the creating power

(either in remembering or imagining); and the thinking power (in comparing, distinguishing, generalizing, classifying, judging, reasoning, inferring).

In three ways, as it happens, too, the sensibility is alive—in emotions (as joy, grief); in affections (as loving, hating); and in desires (as of pleasure, fame, friends, money, goodness, wisdom).

In two ways, finally, the mind becomes a will—in conscious choice (either weakly or strongly preferring); and in volition (in feeble or vigorous command).

These, then, are the prineipal faculties, or modes of action, of the minds with which I have to deal. Without thoroughly understanding them, how absurd, how shameful, to attempt to instruct or train these minds. To help me keep them all constantly in view, I will set them together in a tabular form, and this table I will keep on my desk. So shall I make sure that no instrument in any corner of the orchestra jars with the rest in discord, or drops into neglected silence.

In my diary for the remainder of the week, I will note what ways I find to make the ordinary routine of school bear on each of these:

Intellect:	Observing:	Perception of self, Perception through senses.
	Retaining and Creating:	Memory, Recollection, Imagination.
	Thinking:	Comparing, Distinguishing, Generalizing, Classifying, Judging, Inferring, Reasoning, etc.
Sensibility:	Emotions:	Joy, hope, awe, wonder, Grief, shame, fear, etc.
	Affections:	Love, pity, liking, and reverence, Hate, blame, dislike, contempt, etc.
	Desires:	Of pleasure, fame, approbation, Of goodness, wisdom, power, etc.
Will:		Choice, Command.

Here, then, is my work plainly before me. Each of these

faculties separately, all of them in just balance, are to be given free play to gain full power. To understand all these is my first business. I will learn all I can of them in books on mental science, and in my note-book shall be written all that I can observe each day with regard to their development among the children.

In all that I have written to-day, I know that I have only sketched out the rough outlines of the subject. I have not touched upon those imperious laws of mind: the association of ideas, inherited tendencies, automatism or acquired dexterities, temperaments, etc. Nor have I spoken of traits of character, veracity, curiosity, enthusiasm, energy, sensitiveness, etc.; nor of mental habits, reverie, credulity, skepticism, etc.; nor of those wonderful inner senses of honor, right, justice (conscience), of the sublime, the beautiful (taste), of humor, of ridicule, etc. All these, too, I must watch for, must study, must regulate.

So, after years of patient and unremitting investigation, it may be that I shall be able to have some little part in that great work of which the name "teacher" is, as yet, only the far-off prophesy. E. R. S.

[*For the California Teacher.*]

FUNDAMENTAL PRINCIPLES OF TEACHING LANGUAGE.

TRANSLATED FROM THE GERMAN, BY MRS. LANE.

1. *Pupils are to be prevented from writing a language either prematurely or unaided.*—*a.* In teaching language in our schools, one of the main points to which attention is directed, is *orthography.* It is greatly to be regretted that so much time and labor is spent upon this branch of instruction. It has long been my firm conviction that one chief cause of the great struggle which extends through the whole school-course, lies in the practice of allowing the pupil to begin to write a language independent of aid and at too early a period. The scholar is allowed to write by himself, even when it can by no means be presumed that the picture of the word, in its separate parts, stands before his mind's eye. Error upon error is the natural

result of this. Moreover, let the teacher allow much to be written without exact correction, and the pupil's eye is soon rendered incorrect by familiarity with his own errors. It becomes extremely difficult to create a correct picture of the word, and the injury done to orthography by such premature and unaided writing, is far greater than the benefit in other respects, which has been attributed to this practice.

In order to render the pupil sure in his orthography, the application of the principle rules of orthography is by no means to be neglected, but the weightiest influence will be found to be derived from the eye. But before the eye becomes fitted to perform this service, years of practice are necessary in training it to view with accuracy and to perceive words according to their written form. (Orthography cannot be learned by exercises in dictation, but only by accurate comprehension of what is correctly spoken and written. [Ear and eye.] To look sharp and hear aright, therein lies the whole secret of orthography. The former belongs to the province of instruction in writing or copying, the latter to instruction in speaking.)

This can in no way be better done than by copying much, which copying must be subjected to the strictest criticism. The selecting, according to some orthographic point of view, of words from the reading-book and the writing of them down, is also most urgently to be recommended. By such a method, even if only one page a week be copied, or one exercise in the direction recommended be prepared, the scholars, on their entrance into the higher classes, will be found to have reached the summit of the mountain of orthography. This is a gain which the advanced classes cannot highly enough value. They have gained time, and in many things a road is broken for them, which they would otherwise be forced to avoid.

b. As in view of orthography, so must I, from other points of view also, pronounce against the premature introduction of unaided written exercises for the pupil, and in favor of the careful copying of simple and well-selected pieces from the reading-book. The written language is, for the scholar, something different from the language of ordinary conversation, and even in this latter he is not perfectly accomplished. How then is the child to be expected to put his thoughts on paper in written

language before the genius of the language has, to a certain degree, ripened within him, before he has acquired a knowledge of the most important rules of grammar? The child must necessarily commit errors in style, and the worst of it is, he has no idea that what he has written can be faulty. He is capable neither of *understanding* nor of *feeling* his errors. Thus his very exercises in expressing his thoughts in language become the means of corrupting, of preventing, his sense of the genius of the language, its spirit, its feeling.

Above all things else the genius of the language studied is to be cultivated; this, it is easy to see is not attained by the literary efforts of the scholar, but by choice selections for reading. Therefore, in order to cultivate in the learner the genius, the spirit of the language, I am most thoroughly in favor of assiduous and frequent contemplation, perusal, discussion, copying, and commiting to memory of good selections, and as thoroughly opposed to premature, unaided writing of the language studied. Whoever confines himself in the lower classes to this, will, in the higher classes, have reason to rejoice at the result. But let us ask what is the aim of early, unaided, written exercises? In orthography and manner of expressing one's self surely nothing is gained, but much may be corrupted. Is it for the purpose of forcing children to think? Let us not forget that the effort of the child to think for himself and by himself, is often not worth a penny; and, at the most, exercises of this kind are merely a mechanical effort, the occasion for the exercise of the memory. The teacher who thinks, will, in his teachings in the school-room, sufficiently incite thought in his pupil.

2. *Instruction in language is to be associated with selections for reading.—a.* The aim of instruction in language is not to add to the knowledge (historical, geographical, or other) of the pupil; just as little has it for aim to exercise the power of thought. Certainly instruction in language will be, should be, and must be an exercise of the thinking powers, but this is not its *aim*. Such instruction is rather mutual action, reciprocal effect of thought and speech. For this reason the so-called "exercises in thinking" (Denkuebungen) can be advantageously combined with the teaching of language, and vice versa; at least they may mutually aid each other.

The aim of instruction in language is this:

First—To make the language of literature, or, what should be the same thing, of cultivated people, intelligible to the pupil.

Second—To render the pupil capable of expressing himself in the language studied.

Without the first, the second is not possible; let the first be attained, and the second comes of itself.

If the real purpose of instruction in a language is expressed in the above words, then the first and indispensable means thereto is the speaking in a cultivated style to the pupils, and the reading to them of select literature from books. Such means will effect more than all other means together.

But that this method should have its full influence, instruction in language has, for its task, to guide the learner and to accustom him not merely to the intelligent comprehension of *thoughts* spoken, written, or printed, but also to the *manner* in which those thoughts are *expressed*. But this guiding and this familiarizing of the learner, is less easily effected by means of what is spoken than by means of what is done; that is of what lies printed or written before the pupil, whereby, at the same time, the receptive power of the mind is aided by a second sense, that of the eye. For example: is it not quite another thing when the scholar sees before him the changes in the declension of a word, from what it is when he has to find out, merely by the ear, what changes the word undergoes? Hence the knitting on, if we may use the expression, of the instruction given in language to some piece selected for reading, is far preferable to every other art and manner of teaching.

Here the ground-work is laid on which the teaching of grammar is to be built up, and hereby the pupil learns to feel those forms of speech, and the relations of the different parts of a sentence to each other, which it is the province of grammar to elucidate. From the language itself the child learns to discover the rules of the language, and this is exactly as it should be. In the old method of teaching language it would never occur to the child in reading to think of the structure of a sentence, of its separate parts, its principal words, etc. In the new method the child will and must learn early to think of these things, because, in exercises of expression, he has become familiar with them. What an advance in the linguistic career of the scholar!.

b. Let it not be understood that in the teaching of language the reading of detached, though complete, sentences is sufficient, but the reading must be of selections taken as a whole, finished in themselves, in style and in thought.

FREDERICK FROEBEL.

[*From the Guide to the English Kinder-Garten.*]

Frederick Froebel, founder of the Kinder-Garten Schools, was the son of the pastor of the village of Oberweissach, in the principality of Schwarzburg-Rudolphstadt, in Germany. He was a child of unusually quick sensibilities, keenly alive to all impressions, and hurt by discords of all kinds. He took delight in the beauties of nature and of art, and would spend much of his time in studying the lines and angles in the gothic architecture of his father's church. To such a child the aid of a mother is invaluable; but in the first years of his childhood Frederick Froebel lost his mother, and was thus deprived of this all-sufficient help and protection.

The pastor Froebel was too busy to attend to all the little fancies of his son. It was his good practice to be the peaceful arbiter of the disputes occurring in the village, and, as he took his boy with him when he went out, he made the child familiar with all the quarrels of the parish. Thus were suggested, week after week, comparisons between the harmony of nature and the spite and scandal current among men. A fervent love of God, a fanciful boy's wish that he could make men quiet and affectionate, took possession of young Frederick, and grew with his advancing years. He studied a good deal. Following out his love of nature, he sought to become acquainted with the sciences by which her ways and aspects are explained; his contemplation of the architecture of the village church ripened into a thorough taste for mathematics, and he enjoyed agricultural life practically, as a worker on his father's land. At last he went to Pestalozzi's school in Switzerland.

Then followed troublous times in Germany, and Frederick Froebel went out to battle on behalf of Fatherland in the ranks

of the boldest. Having performed this duty to his country, he fell back upon his love of nature and his study of triangles, squares, and cubes. He had made sufficient interest to get himself placed in a situation which somewhat satisfied his tastes—that of Inspector to the Mineralogical Museum in Berlin. The post was lucrative, and its duties agreeable to him.

How many men and women go about pale-skinned and weak of limb, because their physical health during infancy and childhood was not established by judicious management. It is just so, thought Froebel, with the mind. There would be fewer sullen, quarrelsome, dull-witted men or women, if there were fewer children starved or fed improperly in heart and brain. To improve society, it is requisite to begin quite at the beginning, and to secure a wholesome education during infancy and childhood. Strongly possessed with this idea, and feeling that the usual methods of education, by restraint and penalty, aim at the accomplishment of far too little, and by checking natural development even do positive mischief, Froebel determined upon the devotion of his entire energy, throughout his life, to a strong effort for the establishment of schools that should do justice and honor to the nature of a child. He resigned his appointment at Berlin, and threw himself with only the resources of a fixed will, a full mind, and a right purpose, on the chances of the future.

At Keilhau, a village of Thuringia, he took a peasant's cottage, in which to establish his first school—a village boys' school. It was necessary to enlerge the cottage ; and while that was being done, Froebel lived on potatoes, bread, and water. So scanty was his stock of capital, that, in order honestly to pay his workmen, he was forced to carry his principle of self-denial to the utmost. He bought each week two large rye-loaves, and marked on them with chalk each days' allowance.

After laboring for many years among the boys at Keilhau, Froebel—married to a wife who shared his zeal, and made it her labor to help to the utmost in carrying out the idea of her husband's life—felt that there was more to be accomplished. His boys came to him with many a twist in mind or temper, caught by wriggling up through the bewilderments of a neglected infancy. The first sproutings of the human mind need

thoughtful culture; there is no period of life, indeed, in which culture is so essential. And yet, in nine out of ten cases, it is precisely while the little blades of thought and buds of love are frail and tender that no heed is taken to maintain the soil about them wholesome, and the air about them free from blight. There must be INFANT GARDENS, Froebel said; and staightway formed his plans, and set to work for their accomplishment.

He had become familiar in cottage with the instincts of mothers, and the faculties with which young children are endowed by nature. He never lost his own childhood from memory, and being denied the blessing of an infant of his own, regarded all the little ones with equal love. The direction of his boys' school—now flourishing vigorously—he committed to the care of a relation, while he set out upon a tour through parts of Germany and Switzerland, to lecture upon Infant training, and to found Infant Gardens where he could. He founded them at Hamburg, Leipsic, Dresden, and elsewhere. While laboring in this way he was always exercising the same spirit of self-denial that had marked the outset of his educational career. Whatever he could earn was for his children, to promote their cause. He would not spend upon himself the money that would help in the accomplishment of his desire—that childhood should be made happy as God in His wisdom had designed it should be, and that full play should be given to its energies and powers. Many a nights' lodging he took, while on his travels, in the open fields, with an umbrella for his bedroom, and a knapsack for his pillow.

So beautiful a self-devotion to a noble cause won recognition. One of the best friends of his old age was the Duchess Ida, of Weimer, sister to Queen Adelaide, of England; and his death took place at a country seat of the Duke of Meiningen, on the twenty first of June, eighteen hundred and thirty-two, at the age of seventy.

TECHNICAL education is receiving special attention just now in France. One incident connected therewith is the founding at Rouen of an "Upper School of Industry," organized on the widest basis, and especially intended for the instruction of persons who are to be placed at the head of manufacturing establishments.

EDUCATED EYES.

Very few people, even though entirely uneducated, can look upon a fine antique statute without being impressed by it. Take, for instance, the classic Apollo, as he stands in the haughty and magnificent strength of young manhood, having just sent the death-dealing arrow into the heart of his victim—who can gaze upon this figure unmoved? For not only are the beautiful symmetrical proportions of a perfect human form presented, but there is a significance, a meaning in the attitude and expression which is apparent to the most careless observer.

So forcibly and clearly does this statue reveal itself to the sense of sight, that a strong and lasting impression is produced on the mind; and in proportion as the person beholding it is able to perceive and appreciate its beauty and merit, just in such proportion has his taste become cultivated and refined. For the emotions have been aroused, the imagination awakened by the contemplation of the hero, so superbly free and dauntless; our sympathies are given to him and his cause, and when we turn away and seek to be ourselves again, we find that it is not possible, at least for a time, to descend to our former level—we have been uplifted to a more refined atmosphere and prefer to remain there.

It is chiefly because the Belvedere Apollo, with other renowned statues, is fixed forever in one significant and impressive attitude and expression that uneducated eyes can perceive its beauty. The same eyes look upon, without seeing, the loveliness of earth and air, of water and fire, those elements which are constantly forming for us the most beautiful pictures and forms, ever new, never tiring. How much they lose, those dark, half blinded eyes! I see their owners rush through the crowded street, hastening to daily toil in the morning, to daily rest in the evening, seeing nothing but the grim stone pavement, or the faces of other moles like themselves; while overhead the fleecy clouds go by, veiling and softening the azure dome, and in the far eastward the morning sun glows like a priceless ruby of the Orient, or the far westward lights half the heavens with scarlet and gold, and softly fades to rose and amber, and gently dies away into a pale purple finish before the rising moon.

To those who are able to see, life is never wearisome, seldom sad. To them all nature speaks of beauty, of hope, of life. For them the glorious sun is shining, and the dew drops glitter in his rays; yes, even in the crowded city a little patch of grass or climbing vine will make a picture for their eyes—a picture where light and shadow and reflected lights—chiaroscuro and points of brilliancy—are not wanting; where even bizarre and incongruous architecture is softened and mellowed by the misty atmosphere into a stately picturesqueness, while the thronging, moving human forms constantly appeal to the imagination and the heart.

Such a one—the owner of educated eyes—on a journey, is like a child; all things are new, all beautiful. Shut him into a crowded ship's cabin during a storm, and while others are fretting miserably, he will spend a pleasant hour in admiring the delicate complexion of a girl, whose rounded cheek displays the rose and the lily blended, that the old poets were so fond of describing; or the silken tresses, like spun gold, or like the glossy raven's wing, of some fair lady. Put him on deck in the same storm, and the terrible sublimity of air and ocean will fill his spirit with unspeakable emotion. He wanders over a desolate moorland where another would feel solitary indeed, and rejoices in the soft, broad stretches of color and infinite expanse, that the purple heather below and the cool, hazy sky above present to him. A lichen covered bowlder by the roadside furnishes to him both a resting place and a picture, while the delicate ferns spreading in its shadow are but added objects of beauty and pleasure.

Others value a gem for the amount of money it represents, he for its intrinsic beauty; for the clear translucency of the diamond, the flawless, pure opacity of the pearl, the lovely color of the emerald, the ruby, and the amethyst. It is worth while to be a beautiful woman when a man of educated eyes is near—to be a magnificent man when a woman's educated eyes observe—they only can see and appreciate true beauty; they only are not deceived by the superficial and false.

And it is not merely objective beauty that makes an impression upon these gifted ones, these observers; hours of reflection come when beautiful things once seen must be recalled by mem-

ory. Then the mind forms a picture and dwells upon it till a train of thought is aroused; the relations of attractiveness to life, to happiness, to progress, are carefully reasoned out and true ideal of subjective beauty is perceived.

He who educates his eyes elevates himself constantly; he adds world upon world to that sphere in which he was originally born. He sees and knows the life of every created thing. The animals, to him, are not mere brute beasts, but a strange and wonderful race of creatures who, indeed, cannot speak like man, but who possess domestic and social affections, who are capable of emotions, of education and progression.

And for him the flowers bloom, the lovely flowers, with their exquisite aroma, their grace and fragility. Of what use, indeed, are these beautiful blossoms but to arouse pleasurable and therefore elevating sentiments in the mind of an observer? So to him the vegetable world is closely connected with the human; almost he can believe when examining the life of certain trees and plants that they also are sentient, that they also have some elements of mind, some consciousness of existence. He who has wondered over the sensitive plant, shrinking even before it is touched, can comprehend the myth of the mandrake that shrieks aloud, "Die! die!" when it is torn from its mother earth. That which to others is but an absurd fable, to him is the key that unlocks the archives of an unknown world and permits his all-observing eyes and questioning, penetrating mind to study the hidden lore of nature.

Not only do men and women of educated eyes add world upon world to the one sphere that contents the unobserving, but by interesting themselves in the mode of life, the duties and enjoyments of all living creatures, they fully use every moment of existence and multiply a thousand-fold that little span of seventy years which the multitude find too long.—*New York Mail.*

THE REVISED COURSE OF INSTRUCTION.

The scanty school facilities enjoyed by a majority of the school districts throughout the State have lead parents and trustees to limit, if possible, all instruction to the imparting of only such knowledge as is considered of importance in common

every-day business transactions. The pressure thus brought to bear upon teachers, together with the conviction of many teachers that the short terms for which schools are maintained, will allow of no further instruction than in reading, spelling, writing, and arithmetic, has imposed such a contracted system of teaching upon our schools that the efforts of several State Boards of Education to infuse some of the modern spirit into our schools have almost utterly failed. The system is contracted not only in regard to the number of studies taught, but also in regard to the methods of teaching. The parent or trustee clamors for the greatest quantity of knowledge which can possibly be acquired within the shortest time. The teacher, by short terms condemned to itinerary, seldom feels that his work is only in continuation of that of his predecessor, and preparatory to that of his successor; but he realizes vividly that his worth will be measured by the amount of *work* which *he* can finish within the short term for which he is engaged. The readiest means to satisfy parent, pupil, and teacher, is to cram by the help of text-books. *Mastery* of the printed page is seldom thought of; if a child can rehearse, parrot fashion, the printed page, teaching and studying are considered to bear their legitimate fruit. The organizing of knowledge into faculty, if occuring at all, is a matter of accident and not of fore-design. And, generally, the less the pains to master any prescribed work, the greater the haste to enter upon new work. Lack of early advantages, limited opportunities, etc., are pleas usually powerful enough to break down the limits of any course of studies, and permit the free pursuing of such portions as suit the notion or fancy of the parent or child, to the total neglect of such portions as are seemingly of least importance.

As stated above, this unsystematic and unpedagogic way of teaching, or rather of cramming, is caused, must be caused, by the short terms of our public schools and the consequent frequent change of teachers. State Boards of Education, of this and other States, have seen long ago that the only counterpoise is a course of studies which is required by law to be enforced in every public school not under the control of a local Board of Education.

As far as we can learn from State Superintendents' Reports

and educational journals, no State Board of Education, except that of California, has ever prescribed, definitely, any course of studies. The State Boards of Education of most States have declined the task for reasons set forth in the report of the committee of the Indiana State Board, appointed to prepare a course of studies for ungraded schools. We quote from the report as follows: "Their inability [of the committee] arises from the diversity of the conditions necessary to secure uniformity. These are: 1. The irregularity in the length of school terms. 2. The shortness of the terms generally. 3. The inexperience and inefficiency of many of the teachers. 4. The want of thorough, systematic, intelligent supervision of the schools. * * * All that your committee feel justified in doing, under present circumstances, is to make a few suggestions, which, if adopted, will economize the time of the teachers and increase the efficiency of their schools."

The reasons which are advanced by the committee of the Indiana State Board of Education for declining the task of preparing a course of studies, are the very reasons which have convinced not only the present State Board of Education, but also preceding ones, that one of the first, if not *the* first requisites of a common school system adapted to the wants of a whole State, is a graded course of instruction. The shortness of the terms generally, makes it a necessity that when a new term does begin as little time as possible be lost in commencing the work of the term. If the same teachers were always in charge of the same schools, each teacher would know where the work of the previous term ended, and where the work of the new term must begin. But as itineraney is one of the concomitants of teaching, almost every teacher throughout the State finds himself with each succeeding term in a new district Now, except a teacher knows in what manner and how far a school has been taught, his first care must be to grade or classify the school. Thus usually a month is consumed in the task of preparing the school for the work of the term. If we now take into consideration how many of our teachers are self-made (God save the mark!) without any methods of teaching, or with methods learned from this author or that, or from the bitter

experience of repeated failures, we must see the necessity of some outline map, so to say, from which a teacher may learn *how* the school of which he now takes charge, has been taught, *must* have been taught by his predecessor, and how *he* must teach it so that his successor may not be compelled to lose time in continuing the work. The course of studies is the needed outline map. By it the topics are definitely prescribed which a pupil is required to master each succeeding term, or before he can advance. The course of studies definitely fixes *what* studies shall be pursued, and thus takes away one of the greatest hindrances to thorough education—the giving of prominence to certain studies to the neglect or exclusion of all other studies, according to the idiosyncracies of the teacher, or the fancied needs of the pupil. "The want of constant employment prevents, to a considerable extent, a professional preparation, and as a consequence many persons are selected to teach who are unable to organize, discipline, govern, or instruct a school. Under such circumstances it is not surprising that the selection of the studies and the rate of progress are determined by the children or their parents, and not by the teacher." The remedy is supplied by the course of studies, which selects the studies and determines the rate of progress. The necessity of this is fully appreciated in cities and towns having special Boards of Education. The need of this has been felt long ago by all who are familiar with the workings of country schools. Instead of having a system of instruction determined by the whims of children, or the mistaken or short-sighted views of parents, or the inexperience, incompetency, or listlessness of the teacher, a system is presented which is somewhat in accordance with the experience and advancement of the age.

The course of studies also secures a uniformity in organization, classification, and methods of instruction, which is of great importance to reduce to a minimum the evils resulting from a frequent change of teachers, and the inexperience and insufficiency of many of the teachers. Any general system of organization, no matter how imperfect and binding upon those impatient of limits and control, is preferable to the constant reorganizing and reclassifying consequent upon the advent of each new teacher. If organization and classification are left to the tact,

skill, and experience of each individual teacher, no system is possible.

We hope that the above will lead parents, trustees, teachers, and County Superintendents to consider and weigh the benefits of those provisions of the School Law of California which make it the duty of the State Board of Education to prescribe, the duty of County Superintendents and Trustees to enforce, and the duty of the teachers to follow, a uniform course of studies. In these provisions of the law California is far in advance of many of the older States. Very little benefit has thus far been reaped from these provisions, which have been in force for years, on account of the supineness or opposition of school officers and teachers. But the best interests of our schools can no longer be thus neglected, and the Revised Course of Studies, adopted by the State Board of Education, February 14th, 1873, in accordance with the provisions of subdivision four of section one thousand five hundred and twenty-one of the Political Code, must be strictly enforced on and after July 1st, 1873. Subdivision five of section fifteen hundred and forty-three of the Political Code makes it obligatory upon County Superintendents to enforce the course of studies; and any neglect to do so will make the delinquent County Superintendents liable to the penalties of sections one hundred and seventy-six and seven hundred and seventy-two of the Penal Code. Subdivision ten of section sixteen hundred and seventeen requires Trustees to enforce the course of studies. No teacher is entitled to draw as salary any public schools moneys, except he or she has enforced the course of studies. The salary of any teacher failing to do so must be withheld under the provisions of section seventeen hundred of the Political Code, otherwise the officer drawing such warrant can be held responsible on his official bond for every dollar so paid out.

In the *Manual* (now in course of preparation) which is to accompany the Revised Course of Studies, will be given full instructions in regard to methods of instruction, grading, classifying, and examining.

DO TEACHERS TEACH?

[*From The Western.*]

The paradoxical question that forms the caption of this article, will be recognized by some of my readers as a conundrum proposed by Col. F. A. Seely, in a very able and witty essay, read before the Educational Convention, recently held in St. Louis. He answered the question in the negative—teachers do *not* teach. Whether we shall be compelled to assent to the truth of his position, depends on what he means by teaching. He did not tell us exactly what he meant; perhaps he reserves that for some future essay. Meantime let us enquire if there is any sense in which it is true that teachers do not teach.

We are all indebted to the able and learned Superintendent of the St. Louis Public Schools, for the persistency with which he has defended text-book instruction, and called attention to the truth that to give the pupil the mastery of the printed page, is one of the very best things the school can do for him. The people of St. Louis, particularly, owe him a debt of gratitude for his part in the introduction of a system (Leigh's Phonetics), by which several months' time is saved to their children in learning to read, and so much time is added, practically, to their school career.

Mr. Harris is undoubtedly right in insisting that the school must "teach the pupil how to gain knowledge from books;" "to use the printed page so as to gain intellectual nourishment therefrom," and that no system of instruction would be worth anything unless it did this. This truth cannot be emphasized too strongly.

But there is another phase of the matter that needs to be kept in view, another truth that needs to be emphasized: "To give the pupil the ability to use the printed page to the best advantage," is certainly *a* great object, possibly, *the* great object, but surely not the only great object of the instruction in our schools.

What is the supreme function of education? The word education stands not for a single, definite idea, but for a very complex congeries of ideas. It means different things to different minds. It maps a region not fully explored, and of uncertain

boundaries. I am well aware that each thinker is prone to run sharp lines around that part of this wide field with which he is most familiar, and to forget there is anything outside of his narrow boundaries; as the rustic youth imagines that he sees the whole world from the steeple of the parish church. If, therefore, I use the term in this paper in a somewhat restricted sense, I do so knowingly. I wish to emphasize a view of the subject that has been growing in my mind for years.

I fancy that before reaching this point, the reader of this essay (if it shall find a reader), has answered my question, by saying that the supreme function of education is two-fold: to increase knowledge, and to discipline the mind. To most minds, I suppose, education resolves itself, for the most part, into the two things—knowledge and discipline.

But, gentle and hypothetical reader, what is meant by mental discipline? I am not satisfied with the phrase; it is too indefinite. It, too, stands for a vague complex of notions, of which each sees a part, and too often mistakes it for the whole. "Discipline," says Professor Whitney, "is a word with which not a little conjuring is done nowadays, by men who fail to understand fully what it means. * * * He who sets up discipline and knowledge as opposed to, and excluding each other, wholly misrepresents their mutual relations, and casts the advantage into the hands of his adversaries. In reality, the connection and interdependence of the two are complete: no discipline without valuable knowledge acquired; all valuable knowledge available for discipline; the discipline in proportion to the amount and value of the knowledge acquired; these are fundamental truths in the theory of education." I would qualify this by adding that the discipline is in proportion, not only to the amount and value of the knowledge acquired, but also to the degree in which the method by which the knowledge is acquired, approaches the rational method. Indeed, Professor Whitney recognizes the truth that the value of instruction for discipline, depends not only on the amount and character of the knowledge acquired, but also on how it is acquired; for he says further on (see the essay on Language and Education in *Oriental and Linguistic Studies*): "To teach, therefore, facts, items of positive knowledge, and then lead the mind on by degrees to their con

nections and relations to generalization and inferences is the method that nature prescribes for imparting knowledge; and it is also the true disciplinary method."

The supreme function of education is the organization of knowledge into faculty. "No man can be called educated," says Whipple, "until he has organized his knowledge into faculty, and can wield it as a weapon." What is the organization of knowledge into faculty? "The organization of knowledge," says Herbert Spencer, "is the union of facts into generalizations." Here again, is implied the priority of facts to generalizations in a rational order.

But Stuart Mill expresses my leading thought better in a sentence quoted in a former article in this journal. "The aim of all intellectual training for the mass of the people, should be to cultivate common sense; to qualify them for forming a sound, practical judgment of the circumstances by which they are surrounded." This, in brief, is the view I seek to enforce. According to this view, the aim of instruction is not merely to give the pupil knowledge, no matter how definite, positive, and useful. It is not merely to teach him to use books as sources of knowledge. It is not to cram him with information by any method, either text-book or oral. It is to train his common sense, to cultivate his judgment, to form, rather than to inform his mind, or, better, to form by informing. It is to train him into correct mental habits: to train him to observe carefully, to distinguish between things; to be sure of his facts; to reason correctly; to think for himself, and neither to express nor to hold opinions, unless he is entitled to do so by accurate and extensive knowledge of the subject under discussion. The highest type of mind is the judicial. This the true education aims to produce. It aims not so much to make scholars, as thinkers. Not what one knows, but what he can do, is the criterion by which it would be tested. "The knowledge that will hold good in working, cleave thou to that," says Carlyle. Free thought, untrameled investigation, a bold, alert, and intrepid, and, at the same time, a modest and humble independence of mind, are quite as necessary as mere learning, both to the culture of the individual and to the progress of the race.

If this is what is meant by teaching, then I fear we shall have

to confess that Colonel Seely is right. It seems to me that there is no more pressing need in our schools to-day than the want of this kind of teaching. It will be seen that in this view the method is all-important. If merely to impart knowledge were all, there would be little choice between the oral and the text-book method. The latter is superior in accuracy and system, the former in vividness. It would be difficult to strike a balance between their rival claims. But to impart knowledge is not all. It is quite as important *how* knowledge be imparted as *that* it be imparted. In order to teach the pupil to discriminate, it must be given in such a way as to make him discriminate. In order to train his common sense it must be given in such a way as to exercise his common sense. In order to be organized into faculty, and to minister to mental growth, it must be given in that order in which the mind can best grasp, organize, and assimilate it.

Here will appear the immense superiority of oral instruction, in the hands of one that knows how to use it, over text-book teaching. It is better because, as has been shown, the order in which facts and truths are presented to the mind, is not a matter of indifference; and the text books generally reverse the true order, giving definitions, rules, and generalizations, before the concrete facts, out of which they are built; words before the pupil has got the ideas for which they stand; the results of observation and experiment before the pupil has made any observation or experiment; the net product of ages of inquiry before the pupil has gone through any inquiry whatever. "Of the various kinds of cram," says Professor Whitney, "by far the worst is that which crowds in prematurely the derived results of learning, inferences, and beliefs, systems, and general truths. This is the strong meat that must not be set before babes."

It is better, because the teacher, being on the ground and dealing with pupils whose surroundings and associations are known to him, can "hit the nail on the head" better than the author of the text-book, who writes for many different schools in all parts of the country. He can adapt his instruction to particular cases and local requirements, which the book cannot do. He can avail himself of his knowledge that we think in

relations; that all knowledge consists in the establishment of relations between phenomena; that to know anything is to bring it into relation with something already known; that to acquire new facts is either to come at them directly through the senses, or bring them into relation with facts previously acquired through the senses. Knowing the extent and kind of his pupil's acquirements (their actual, not their second-hand knowledge), he knows best how to connect what he wishes to teach them, with what they already know; to link fact with fact, and truth with truth, so deftly that knowledge is organized as fast as it is acquired.

Again, it is a maxim in teaching that pupils should never be told what they can be led to find out for themselves. Says Stuart Mill: "If there is a first principle in intellectual education, it is this—that the discipline which does good to the mind, is that in which the mind is active, not that in which it is passive. The secret for developing the faculties is to give them much to do, and much inducement to do it."

Now, strange as it may sound, the charge made against oral teaching, that it makes of the pupil a mere passive recipient, while it is true only of bad oral teaching, is true of all text-book teaching (at least with the books in common use), and cannot be otherwise than true. The pupil that sits down to learn a lesson from a text-book, is compelled to be a mere passive recipient of what the author tells him. There is no help for it; there is the task, and he must learn it or fail at the recitation. On the other hand, the skillful oral teacher (and only a master mind can use the method successfully), can keep the faculties of the student continually on the stretch, recalling former sense perceptions, tracing the relations and implications of familiar facts, observing, experimenting, comparing, distinguishing, inferring, and reasoning.

The child thus becomes an investigator, in order to become a scholar. True, he must rediscover facts and truths well known for ages. But this, instead of being an objection to the system, is one of the strongest arguments in its favor. Surely, no one that has felt the delight of original thought and discovery, would deny that supreme intellectual joy to children; especially

when he considers that such joy is one of the strongest incentives to further effort; that such exercise is the one best calculated to develop the powers of the mind; and that acquisitions made in this manner, are beyond all comparison, more valuable, though less extensive than the showy, but superficial results of rote teaching. Moreover, original thought and investigation is the mental exercise that is best calculated to develop the student's individuality of character. And here I must quote Mill once more: "The present civilization tends so strongly to make the power of persons acting in masses, the only substantial power in society, that there never was more necessity for surrounding individual independence of thought, speech, and conduct, with the most powerful defenses, in order to maintain that originality of mind and individuality of character which are the only source of any real progress, and of most of the qualities that make the human race much superior to any herd of animals."

It seems clear, therefore, that better results can be obtained by a judicious combination of oral and text-book teaching, than by either exclusively.

Enough text-book teaching to give pupils the mastery of books as sources of knowledge; enough oral instruction, properly given, to accomplish the object that I have endeavored to point out. He that best fulfills these conditions is the teacher who most truly teaches. Such, I believe, will be the Coming Teacher.

A. F. Hamilton.

DEPARTMENT OF PUBLIC INSTRUCTION.

A County Superintendent submits the following questions:

First—Can a person who has neglected to attend the March examination, and holding no certificate whatever, take a school immediately thereafter [the March examination], teach till June, then passing a successful examination, draw pay out of the public School Fund for the time she taught without a certificate?

Second—Can a person who *has* held a third grade certificate, and fails to secure the requisite seventy per cent, pursue the course mentioned above?

We answer to both questions, *decidedly no*. A full decision on the above questions was published in THE TEACHER for December, 1872, page 204, last paragraph. Perhaps it will be not amiss to restate the decision. No school is a public school unless the teacher or teachers employed in the school are the holders of legal certificates, in full force and effect *at the time school is commenced and during the whole time it is maintained*. And no school district is entitled to receive any apportionment of State or county school moneys unless the teachers employed in the schools of such district hold legal certificates of fitness for teaching, in full force and effect. (Section 1,860 of the School law, or rather the Political Code.) No County Superintendent has the power to draw any warrant for the salary of a teacher until he, the County Superintendent, has seen such teacher's certificate, and satisfied himself that it is in full force and effect, and will be while the teacher has charge of the school. A certificate, in full force and effect, is one which is valid—that is, the time for which it was granted is not yet expired; is properly indorsed on the back; corresponds in grade to the grade of the school taught by the teacher, or at least is not of a lower grade than the school; and lastly, is either a State certificate, or a certificate granted in the county or city where the holder is teaching. If any one of these four provisions is not complied with, the holder cannot draw, as salary, any public school moneys, nor can the district receive any apportionment of public school funds. County Boards of Examination can grant certificates *only* upon examination, or upon Normal School certificates. A County Superintendent may issue temporary certificates, in accordance with the provisions of subdivision six of section one thousand five hundred and forty-three. Every Board may renew the certificates issued by it, provided that the application for a renewal is made at the next regular meeting of the Board of Examination. Temporary certificates cannot be renewed. Upon the back of a certificate granted upon an examination, must be indorsed the standing of the applicant in each study and in the class. If a certificate is renewed, the standing must be transferred. If a certificate is granted upon a Normal School diploma, the indorsement will: Granted upon [insert the name of the State] State Normal School diploma.

Before the June number of THE TEACHER can come to hand a majority of the Census Marshals will have begun the taking of the census. This is, therefore, the last opportunity we have of calling the attention of County Superintendents to the new edition of blanks which we have prepared for this year's census. County Superintendents who are not yet supplied with the new blanks will please send for them. *Use none but the new blanks.* On the back of these blanks are printed the following instructions to Census Marshals:

1. Obtain from the Trustees or County Superintendent the exact boundaries of your district. 2. Report all the statistics asked for. Incomplete reports are not to be accepted by the County Superintendent. 3. Include in your report all children (whose parents or guardians are residents of the district) that are absent, attending institutions of learning. Do not include in your report children who are attending institutions of learning in your district, but whose parents or guardians do not reside therein. 4. If your district lies partly in two adjoining counties, you must report to the Superintendent of each county. 5. Be particular that the children listed in columns 1, 2, and 3 are properly distributed into columns 5, 6, and 7. In listing the children who have attended private schools at any time during the year, be careful to list only those who have *not* attended public schools, but private schools *only*. 6. Foot up each column. *Check your additions.* The sum of the totals of columns 5, 6, and 7 must equal the sum of the totals of columns 1, 2, and 3. 7. You must subscribe to the annexed oath, and deliver, on or before the first day of July, a copy of this report to the County Superintendent, and a duplicate copy to the School Trustees.

We have printed also a new edition of Teachers' Reports, but as we have embodied in them the divisions of the new course of studies, which does not go into effect until on and after July 1st, 1873, it will prevent confusion if the reports for this year are made upon the blanks heretofore issued. Should, however, a County Superintendent be compelled to use the new blanks, it is necessary that he call the attention of teachers to the fact that in the new course the third grade has four divisions, and the second grade only two, because the third division of the second grade has been made the first division of the third grade; and the first, second, and third division of the third grade have been made the second, third, and fourth division respectively. Teachers must bear this in mind in case they have to use the new blanks in making this year's report.

The "Instructions to Teachers" which are printed on the second page of the new blanks must be strictly followed, no matter which blanks are used. For the benefit of those teachers who may not receive blanks on which these instructions are printed, we give them herewith:

1. Every Public School Teacher whenever he ends a school term, whether at the close or in the middle of a school year, must report to the County Superintendent. No warrant must be drawn in favor of any teacher except a complete and correct report has been *received* from such teacher. 2. In schools having more than one teacher, the principal alone must report; but such report must include *the statistics for the whole school.* 3. In districts in which, during the year, several terms are taught, every report must, except the first, include the statistics of any previous report of a part of the same school year, and the last report must include all the statistics for the entire school year, notwithstanding any previous report of a part of the year. Such final report must be in the hands of the County Superintendent on or before the tenth day of July. 4. In regard to the statistics to be given on the first page of the report, the following instructions must be *strictly* followed: After giving the names of the months for which the report is made, in column 1 must be given the number of days school was kept open in each month; the total for the term or year is found by addition. The entries for columns 2 to 10, inclusive, are taken from the register. In columns 5, 6 and 7 are to be entered for each month the number of pupils actually on the registor, and not simply those who have re-entered school, or entered school for the first time during that month. The total for columns 2, 3 and 4 are found by addition. The total for column 5 must be the same as the total number of boys given in column 11; the total for column 6 must be the same as the total number of girls given in column 11; the total for column 7 is equal to the sum of the totals of columns 5 and 6. The total for column 8 is found as follows: Add the totals of columns 2 and 3 and divide the sum by the total of column 1—the quotient is the total (or rather average) of column 8. The total (or average) for column 9 is the quotient obtained by dividing the total of column 2 by the total of column 1. The total or average for column

10 is found by dividing the total or average of column 9 by the total or average column 8. In column 11 must be entered for the first month every pupil who entered school during that month. After the first month, entries are only made as pupils enter for the first time during the school year. The total is found by addition. The object of column 11 is to give the whole number of pupils who have attended public schools at any time—no matter how short—during the school year. To consider, therefore, as some teachers do who have taught in a school more than one year, those pupils only as "new pupils" who never came to school before while said teachers were teaching, is not correct. 5. In regard to the "General Statistics," teachers must pay strict attention to report correctly the number of pupils for the different divisions of each grade. All questions asked must be answered in full. 6. If a report is incomplete or incorrect, County Superintendents must not draw any warrant in favor of a teacher making such incomplete or incorrect report, until such report is completed and corrected.

If County Superintendents will take pains that the instructions given above are strictly followed by the Census Marshals and teachers respectively, none but clerical errors can creep into the Superintendents' Annual Reports. In this connection we desire to call the attention of County Superintendents to the importance of having this year's reports as free from errors as possible. For, if we grant County Superintendents till the 20th of August in which to report, we shall have no time in which to make corrections. Our report to the Governor and Legislature is due on the 1st of August; and, though it will be impossible to report at that date, we must report as soon as practicable after that date. We, therefore, give notice that if any report is grossly incorrect, or not on hand by the 20th of August, the provisions of section fifteen hundred and forty-four will immediately be enforced. Subdivision fourteen of section fifteen hundred and forty-four makes it the duty of County Superintendents to report *when directed by the Superintendent of Public Instruction*, showing such matters relating to the public schools in his county as may be required of him. The State Superintendent hereby directs County Superintendents to report on or before the 20th of August—that is, their reports must be in the hands of the State Superintendent by the 20th of August. The statistics to be reported will be given in the blanks, which, in due time, will be sent from this office.

In previous numbers we have explained the method of collating the statistics relating to the census and schools. We come now to the Financial Statistics—Expenditures. Last year we advised County Superintendents to depend for these statistics not upon the Trustees' Reports, but upon their own books. Every County Superintendent is able, must be able, to tell how much a district spent for teachers' salaries; how much for rents, repairs, fuel, and contingent expenses; how much for the school library; how much for school apparatus; and the total of all these expenses gives the *total current expenses*. *En passant*, we may remark that some County Superintendents were too much in a hurry, or to give our real thought, too lazy to add together the different items of expenses above enumerated, so as to show the total expenses for the different districts. In one county, having sixty-nine districts, the total current expenses for not a single district were given. If, as advised, County Superintendents take their own accounts instead of the Trustees' reports, they must pay attention that the monthly salary paid teachers at the number of months school was maintained, gives the cash paid out for teachers' salaries. In the county above cited—and in almost every county in the State—we have statements like the following: Teacher received $100 per month; school was maintained ten months; paid out for teachers' salary $459. Now, according to our arithmetic, the amount paid out for teachers' salary should have been $1,000. To prove that no ten months' school was

maintained, or if this was the case, that the teacher received only $45 90 per month instead of $100 as reported, we may state that the district, which is credited with the above brilliant finance-engineering, had a balance of $460 36 to its credit at the end of the school year; whereas, if a ten months' school at a monthly salary of $100 paid the teacher was actually maintained, the district would be some $541 in debt. We might give hundreds of instances where schools were maintained for a length of time, and at teachers' salary, in inverse ratio to the amount expended. It may be held that in such cases the district contracted a debt for a part of the time the school was maintained; but on examining the reports we find that in nearly every case the district has a balance to its credit at the end of the school-year. Two explanations occur to us: First, at the close of the year the orders given for teachers' salaries may have not been all presented; so that, though a balance is reported on hand, yet, actually, the money is already expended. In such cases we request County Superintendents not to report the balances shown by their books on the 1st of July, but to deduct from such balances all outstanding indebtedness incurred by the districts up to June 30th. In order to do so it may be necessary to defer the making up of the "Expenditures" until the last thing. Secondly, though the expenditures are correct as reported, yet the County Superintendent may have guessed either at the length of time schools were maintained—one County Superintendent at least acknowledges to have done so—or he may have guessed at the monthly salary paid. Both these data are required to be reported by teachers and trustees; both data ought to be the first fruits of even the most superficial superintendency of the schools of the county; to have these two data correctly reported is of the utmost importance to us in order to have a basis which will shape the suggestions we may have to make in order to induce the next Legislature to grant an increase of school revenue. County Superintendents in making up the *expenditures* must report all the sums actually drawn from the treasury during the school year, and, if there are outstanding debts for which no orders are drawn or presented at the close of the school year, the amounts of these debts must be included in the expenditures, *if a balance is on hand in the treasury sufficient to pay these debts.* If a balance is on hand sufficient to pay only a part of the claims outstanding, only so much as will exhaust the balance must be included in the expenditures. If all the funds to the credit of a district are expended at or before the close of the school year, of course no outstanding claims can be included in the expenditures, otherwise, as sometimes may frequently is the case, the expenditures will exceed the receipts.

In reporting the monthly salary paid a teacher, the County Superintendent must report the amount which is actually drawn out of the treasury, and not the amount reported by Trustees and teachers. For, in cases where the teacher is "boarding round," or boarded by a family for some such consideration as private instruction furnished the family, etc., the salary paid such a teacher out of the public funds is usually lower than it would be if the teacher had to pay for his board out of the salary paid by the district. The actual salary received by the teacher is the cash drawn out of the treasury, plus the board and other considerations furnished by the district in common, or by some family or families; and the Trustees and teacher are apt to report this *actual* salary. But the *cash* drawn from the treasury for salary being less than the *actual* salary, will enable the district to maintain the school for a longer time than if the full salary were paid in cash drawn from the treasury. Hence the *cash* drawn monthly out of the public funds for salary is to be reported as the

monthly salary paid teachers. County Superintendents must be careful that in their next reports the cash paid for teachers' salaries is in direct ratio—and not in inverse ratio as frequently heretofore—to the number of months school was maintained at the monthly salary reported paid teachers.

It may have been noticed that we have apparently overlooked a case in which may occur a discrepancy between the cash actually paid for teachers' salary and the amount which ought to have been paid according to the time school was maintained. This case may happen when a district maintains a school longer than it is able to pay for out of the public school funds, and where the deficiency is either paid by private subscription or left unpaid until at the end of some future school year an unexpended balance accrues with which to pay the indebtedness. The rule for all cases must be that the County Superintendent report only such expenditures as can be paid out of the receipts. If, in addition to the funds obtained from the State and county apportionments, subscriptions or taxes are raised and are included in the *receipts*, then the full amount actually expended must be reported; but if the subscriptions or taxes are not included in the receipts, or if the district contracts a debt, then only the amount actually drawn from the treasury is to be reported. In all cases the monthly salary paid teachers must be found by dividing the amount paid for teachers' salary by the number of months school was maintained.

In regard to the *receipts* we have to make only one remark: In all cases the receipts must at least equal, if not exceed, but never fall below, the expenditures. The total expenditures, plus the balance on hand at the close of the school year, must equal the total receipts. If, as already stated above, County Superintendents cannot ascertain the amount received from rate bills, subscriptions, and miscellaneous sources, then so much of the expenditures as were covered by the funds so raised, must *not* be reported.

According to the decisions of the Supreme Court of the State of California, in People vs. Hastings, and People vs. Sargent, the special district tax to be levied by Boards of Supervisors and Auditors, under the provisions of sections 1,845 to 1,848, inclusive, of the Political Code, is illegal and void. The State Board of Equalization has instructed Assessors and Supervisors to discontinue the levying of said special district tax. If districts need additional school facilities they can raise them only under the provisions of section 1,830 *et seq.*

State certificates for the following named persons remain uncalled for in the office of the State Superintendent of Public Instruction, at Sacramento:

Miss Addie E. Aiken,
Mrs. Laverna Allen,
Miss M. J. Alderson,
Miss Julia V. Ashley,
Miss Sarah Avery,
Miss Anna Bryant,
Mary Brier,
Hugh Joseph Byrne,
Miss Lizzie M. Brooks,
Zervia E. Cornelius,
Miss Joanna T. Casey,
Margaret J. Carothers,
Miss Louise M. Coffin,
Anthony W. Dozier,
Miss L. B. Easton,
Miss Mary C. Fitch,
Charles E. King,
Miss Mary S. Kimball,
Miss Ida M. Kervan,
Miss Nellie M. Kelsey,
Miss Esther Levy,
Miss Nellie F. McFarland,
Miss Lucy C. McNear,
William H. Magoon,
Miss Maria O'Connor,
Miss Annie M. O'Brien,
Miss Carrie Pearce,
H. S. Raven,
Miss Addie E. Rogers,
Mrs. Mary W. Rice,
Edith Rivers,
Ella Russell,

Juliet A. Fisk,
Thomas P. Grasty,
Miss Alice Hall,
Mary C. Hall,
S. M. Hunt,
Miss M. E. Hogan,
Henry C. Higby,
Mrs. Carey W. Jones,
T. E. Kennedy,
Mrs. M. S. P. Robinson,
J. H. Sewell,
Miss Fannie Savage,
Helen R. Stevenson,
Jules Simon,
F. A. Stowell,
Miss Ettie L. Thompson,
May F. Teague,
Emory Watkins.

CONTRIBUTIONS IN AID OF THE UNIVERSITY.

First—D. O. Mills of the Bank of California, has purchased at a cost of several thousand dollars, a cabinet of ores, minerals, fossil animals and plants, and aboriginal stone implements. This cabinet has been brought together during a series of years by C. D. Voy, of Oakland, an enthusiastic and skillful collector, and is well known both at the East and west, among men of science, as an admirable exhibition of the geological characteristics and mineral resources of the State of California. It has been favorably commended by Professor J. D. Whitney, geologist of the State of California, Professor O. C. Marsh, of Yale College, Professor Joseph Le Conte, of the University of California, Lesquereux, of Pennsylvania, and others. The cabinet will grow more and more valuable as the years roll on. It is already transferred to the University, but will probably not be opened to the public view until the rooms to be provided for it, at Berkeley, are made ready.

Second—The Mechanics' Institute has transferred to the University a valuable collection of Japanese mineral and vegetable products, sent to this country in 1871 by the Japanese Government.

Third—Louis Janin has given a small but very choice collection of gold, silver and cinnabar ores from this and other countries.

Fourth—S. F. Butterworth has presented a bound set of the New York *Daily Times*, from its foundation until the close of the recent war.

Fifth—H. J. Booth & Co. have given to the metallurgical collection a five-stamp battery complete.

Sixth—George M. Blake, of Oakland, has given to the Regents of the University a tract of ten acres of land adjacent to the University site at Berkeley upon the sole condition that it be forever kept unincumbered for the purposes and uses of the University.

Seventh—Michael Reese, of San Francisco, has presented to the University the library of Dr. Francis Lieber, of New York, a collection of some 3,000 books and many rare pamphlets. The price of the library is $2,000.

Eighth—Three gentlemen of Oakland, interested in the progress of the University, have contributed to the purchase of educational apparatus the following sums: William H. Raymond, the sum of $1,500, for a purpose not yet designated; Charles W. Howard, the sum of $500, for photographs and maps illustrative of Greek and Roman antiquity; and Henry D. Bacon, the sum of $500, for diagrams and models illustrative of civil engineering.

Ninth—The unconditional conveyance to the University of the building, land, and scientific apparatus of the Toland Medical College, amounting in value to the original gift of its generous and enlightened founder, Dr. H. H. Toland of San Francisco.

EDITORS' TABLE.

Well Put.—In his address before the Massachusetts Teachers' Association, recently held at Worcester, Professor Hammond said: A master of the art of persuasion once said to me: Your schoolmaster power, talent, or tact, call it what you please, I cannot comprehend. I can move an audience as I please; you, it appears, can keep an audience as you please. I know how to *move* men or boys to laughter or tears by turns. I can *move* them to shout at the top of their voices, or throw their caps high in the mid-air. I can wrest money from their pockets by their own unwilling hands, for an object in which they have no care, except their interest in me as its defender; but how to *move* boys to *keep still;* how to *move* an inactive, unwilling mind to *keep* studying; how to *move* a mischievous, mimicking, rollicking urchin, to *keep* sober by the hour together, I cannot tell. Put me in a school room and tell me what is the first thing to do, and then you would have to tell me what is the next thing to do. I can *move* a school, if that is all that is wanted: but how to *move* to *keep* a school, that is one great mystery to me.

Latin Grammar.—In the same convention, Professor Hill, of Chelsea, speaking of *Latin as a means of popular education*, said: "Latin helps us in English grammar. Well, we need help badly enough, and doubtless get some. But does not this argument look rather grim, when we consider that the English language became strong and developed a literature without the aid of grammarians; that English grammar was an after-thought, modelled in nomenclature and rules after Latin grammar, but having little else in common with it? Does not it admit that there is less sense in our technical English grammar than in Latin, or that our mode of teaching English is defective, or that something is "rotten in Denmark," when we resort to a dead language to help us in a living one, and that our mother-tongue? The simple fact is, that if the faithful teacher compares English usages with Latin, pointing out the few agreements and the numerous differences, the pupil's knowledge of English grammar is incidentally improved, and might be in the study of any foreign tongue. But this incidental help does not alter the fact that the straight-forward, face-to-face way of studying English is the most profitable as well as the most economical. How much of the help which Latin is supposed to render English grammar may be due, after all, to the greater maturity of the pupil, when he enters upon Latin, I will not attempt to discuss. Latin unlocks the meaning of many English words that come from it. But when we add words to our vocabulary, we are guided by usage first, and investigate hidden meanings afterwards. It is a pleasurable surprise, after using a word a score of years, to peep into it and see how admirably its inner sense justifies its use. A moment's reflection fourteen years ago might have revealed to me the inner sense of the word *discreet*. I did not indulge that reflection, however, until a few days ago. I appeal to every classical student, if he does not use hundreds of words to whose inner chambers he has the key, but has never used it? It is pleasant to unlock these words; but that a course of study in Latin, however profitable, is essential to a correct use of them, I deny. If essential, a knowledge of Greek and Anglo Saxon is essential too. If essential, it is a waste of time to use any of the numerous works that treat of word analysis. If essential, our dictionaries and books of synonymes lose in value. If essential, we have unsolved problems in a host of able men who have written in innocence of Latin."

STATE NORMAL SCHOOL MATTERS.—About four months ago, at a meeting of the Board of Normal School Trustees, Professor H. P. Carlton was summarily removed from his position as Vice Principal of the State Normal School. The surprise and indignation concerning this action was so strong and universal in educational circles, that at a subsequent meeting Professor Carlton was reinstated. At the recent meeting, however, the original programme was put through, and Mr. Carlton was finally removed. No cause for this action has been made public. It is generally understood, however, that the crusade against Mr. Carlton originated mainly in the personal ill-feeling of the member of the Board from San Francisco, who, since he became a member of the Board, has been unceasing in his efforts to effect the change. Governor Booth and State Superintendent Bolander were in favor of retaining Professor Carlton. The action of a majority of the Board is in keeping with the general mismanagement of the school, including the erection of an educational barn at a cost of $300,000. It is no discredit to Mr. Carlton's ability, as a teacher, to be removed by such a Board. We do not desire to make further comments on the case. We give the following extracts from a letter addressed to Governor Booth by George W. Minns, a former Principal of the school (now in Boston), to show an unbiassed opinion of Mr. Carlton's merits as a teacher:

To his Excellency, Newton Booth, Governor of California: My friend, Mr. H. P. Carlton, Vice Principal of the California State Normal School, writes me that there is a possibility of his losing his present position, at the meeting of the Board of Trustees, in March. I trust that there may be no impropriety in my writing to your Honor upon this subject. My excuse for so doing is, that I was for ten years connected with the San Francisco High School, and afterwards, for one year, Principal of this same State Normal School; and I hope that the deep interest I naturally take in the cause of public education in California, and my long and intimate acquaintance with Mr. Carlton, will relieve me from any imputation of intermeddling. I may say that I am prompted to write by the warm friendship and the sincere respect I have for Mr. Carlton, and my knowledge of the eminent services he has rendered in California; and I should be unworthy of the name of friend or man if I were not ready on all proper occasions to express the cordial good will and the sentiments of high esteem I feel for him. I have known Mr. C. since 1856. He has always been identified with the interests of the public schools of California. He has been in the State Normal School almost since its foundation. He is an able, faithful, and conscientious teacher, possessing a true enthusiasm for his vocation; a diligent scholar, and continually improving. He was much beloved by his pupils, and won the confidence and respect of all by the manner in which he discharged his duties, and by the unimpeachable excellence of his moral character. I have summered and wintered him for years; I have been closely associated with him, and if I could find stronger words to express my sense of his worth, I would use them. I hope the Board of Trustees will conclude to retain at his post, a man who has labored so long in the vineyard, bearing the heat and the burden of the day; one who has devoted so many of the best years of his life to the advancement of the cause of public education in your wonderful State; and that having been found faithful in the day of small things for the State Normal School, he will be permitted to stand a living pillow in the beautiful edifice erected in San José. I believe all Californians will show a generous consideration for the faithful public servant. I write this with [illegible] knowledge, and obeying nothing but the dictates of my own hea what is due to the merits of a true old friend.

I have the honor to be, very respectfully your obed

Boston, February 15th, 1873.

The following document was not presented to the Board, that nothing could break the ring organized to remove Mr.

OAK

To the Honorable Trustees State Normal School—Gen ship we entertain for Mr. Henry P. Carlton, and the high

scholarship and professional skill, prompt us to solicit from your honorable body his reappointment to a position in the State Normal School. The efficiency and the popularity of this institution will be maintained by his continuance in office. We venture to affirm that if the question of filling Mr. Carlton's present position could be referred to the teachers of the public schools, no other candidate would receive a larger vote or a more enthusiastic support than he. Mr. Carlton's fellow teachers—and especially those who are pioneers in the cause of education on this coast—have always held him in great respect, and during late years, whilst he has been extending his researches into the domain of science and art, they have conceived a marked admiration for his ripened scholarship. The State Normal School, moreover, is so closely identified with our other public schools and their instructors, that, if for no other reason, a proper deference to the opinions and wishes of these schools and teachers, will influence and determine the re-election of Mr. Carlton. What these opinions and wishes are, such representative school men as Professor Bolander, Professor George W. Minns, Dr. Fitzgerald, and Messrs. John Swett, Bernhard Marks, Theodore Bradley, and D. C. Stone, can best state, as on many a gathering of the school fraternity, they have expressed themselves. We have known Mr. Carlton, as a teacher in this State, for fifteen years, if not longer. Throughout this long period of poorly compensated labor, within which time most men of Mr. Carlton's abilities would in other vocations have become enriched, he has had at least the satisfaction of being undisturbed by any school authorities, whatever may have been their political bias. And we confidently believe and trust that your honorable Board will not take the initiative in the removal of a teacher of the State Normal School, an institution for whose continued prosperity we shall ever labor.

With sentiments of the highest respect, we remain your most obedient servants,

HENRY DURANT,
M. KELLOGG,
E. S. CARR,
WILLIAM SWINTON,
G. B. McCHESNY,
GEORGE TAIT.

THE building for the College of Agriculture, at Berkeley, is nearly completed. It will cost about $200,000. It is built of granite, brick, and iron, and is in every respect an edifice worthy of the State University. It affords a remarkable contrast to the educational barn built for the State Normal School at a cost of $300,000. The Superintendent of the building, J. W. Duncan, has reason to be proud of the faithful, honest, and capable manner in which he has discharged his duties. The building for the College of Letters will be completed by September next. It will be built of wood, under the general direction of Dr. Merritt. The University will move to Berkeley next October.

PERSONALS.—Miss Mary Pascoe has been elected Vice Principal of the Broadway School, vice Miss Tibbey, suspended.....C. H. Crowell has returned to San José from the State of Nevada, and is teaching the Hester District School. He is an able and accomplished teacher who merits a much better salary than he gets.....James G. Kennedy is teaching the South-end school in San José. He keeps a good school and stirs around generally. It is rumored that he is a prospective candidate for the office of County Superintendent. The name of Mr. Lighthall is also mentioned in that connection.....Professor Hewitt has a fine school at Santa Clara. He is a quiet man who understands his business.....C. B. Sowle is doing well at Vallejo. He has an able assistant, A. W. Dozier. Externally the school-house at Vallejo is a fine one, internally it could hardly be made worse; in fact, it is worse than the State Normal School barn, which is saying a good deal in the way of condemnation. Vallejo has a new course of study.....Dr. E. J. Schellhouse has engaged to teach the school at Pleasant Grove.....A. H. McDonald is deservedly popular in Sacramento. He is a careful, painstaking, hard-working teacher.....Deputy Superintendent

Eickhoff looked as gay as a lark last month notwithstanding his hard work on the new State course of study.....Tracy is deep in the mysteries of law after office hours.....B. B. Redding, member of the Sacramento Board of Education, has gone to Europe on a six months tour. He will doubtless bring back some good educational notions.....Professor Randle, at Stockton, has a very fine High school class. He is one of the solid teachers of the State, in fact, the *tallest* kind of a teacher. He is to be a candidate for the office of County Superintendent.....Superintendent Leadbetter has bought a ranch and is going to farming.....Newell's bookstore, as usual, is the headquarters of the Stockton pedagogues.....Cottle, ex-Superintendent, is a bloated Federal official in the United States Land Office.....Hammond has just got back from Philadelphia, where he has been learning to make pills.....Thomas F. Kennedy is teaching at Mariposa.....Dr. T. H. Rose has returned from Washington to engage in teaching again..... Dr. Clark has resigned his position as City Superintendent of San José.

SACRAMENTO is to have a revised course of study. Superintendent Denson and several hard-headed members of the Board of Education, taking a common-sense view of the situation, determined to cut down the old course of study about one half. A worse course than the old one could not well be devised. The evening schools in Sacramento have proved a success.

MARTINEZ has just completed a fine school-house at a cost of $7,000. Stockton has built another fine school building.

BOOK NOTICES.

From A. S. Barnes & Co., New York:

NATURE AND UTILITY OF MATHEMATICS. By Charles Davies.
THE CRITICAL SPELLER. By Professor A. L. Barber.
THE SANITARIAN. A Monthly Journal.
THE LOGIC OF ACCOUNTS. By E. G. Folsom.
AN EXAMINATION OF DEMONSTRATION OF DAVIES' LEGENDRE. By Chas. Davies.

From A. Roman & Co., San Francisco:

GETTING ON IN THE WORLD. By William Mathews. S. C. Griggs & Co., Chicago.

From J. W. Doughaday & Co., Philadelphia:

ELOCUTIONISTS' MANUAL. By J. W. Shoemaker.

THE OVERLAND MONTHLY FOR MAY.—This is an especially readable number. The initial article—"The Gold-sands of the Pacific"—gives a detailed account of the gold deposits on the coast of California and Oregon. Recent experience appear scarcely to bear out the writer in his prediction that they will add largely to the resources of the western slope of our country. Of Western and personal sketches we have "Oregon Twenty-five Years Ago;" "Only an Episode," very charming; "Bustor," illustrating some of our "wild-cat" mining operations; "One of the Argonauts of '49," which is not up to the *Overland* standard, if we are to judge by the first installment. Mrs. Yelverton gives an interesting sketch of the "Borneo Cinnibar Mines." The article on "The Third Napoleon" sharply criticizes the stand taken by Mr. Dwinello in last month's *Overland*. The Modoc massacre and the "Indian Peace policy" are pretty roughly handled in the "Etc."

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I forward you the replies to the questions, prepared as correctly as I could.—*C. B. Stebbins, Depart. Pub. Inst'n, Michigan.*

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THE

CALIFORNIA TEACHER.

JUNE, 1873.

VOL. X. SACRAMENTO. No. 12.

[*For the California Teacher.*]

FUNDAMENTAL PRINCIPLES OF TEACHING LANGUAGE.

TRANSLATED FROM THE GERMAN BY MRS. LANE.

II.

1. Taken in a wide sense, the teaching of language in our schools has for its purpose to regulate, correct, and enlarge the pupil's sphere of thought; to practice him in the certain and quick comprehension of what he reads and hears, and in the clear and correct expression of his own thoughts and of the thoughts of others. This purpose is accomplished principally by means of varied exercises, and by cultivating the feeling of the genius of the language. Thus our teaching of language aims at making the language of eloquent discourse and literature intelligible to the pupil. And this style of language is not always distinct from the colloquial; on the contrary, the two often approach each other most nearly. To illustrate: we have before us a complete and elegant discourse; one main thought underlies as groundwork the separate thoughts uttered, and these latter group themselves around the former, and, in subordination to it, flow together in unity. A sermon will illustrate this. The requisite mental capacity being first possessed, he who has been trained in the study of language *will be able to grasp and hold fast to the main thought of a sermon, speech, lecture,*

or other discourse. The main thought is the product, the result, the total abstract of the thoughts belonging to it.

2. These separate thoughts, whose product is the main thought, again divide themselves into larger or smaller groups of thoughts, which groups consist of a number of opinions or propositions; for example, each division of a sermon is a larger group of thoughts, ever subordinate, however, to the sermon taken as a whole. To this principle our second requirement is annexed, viz: that one must be able to distinguish for himself the principal and subordinate, or major and minor parts of a complete discourse, to be conscious of them, and also of their relations to the discourse as a whole.

3. Finally, we come to what is called in the study of language a sentence; the sentence, again, is a unit, composed of separate parts. Further, around the principal sentence we find dependent sentences grouped, and around the subject and predicate of a simple sentence the other members of the sentence. We now state our third requirement, viz: the cultivation of a mental sensibility, by which one feels mentally conscious of the single parts of a sentence, and of their relations to the whole sentence.

4. Every part of a sentence consists of words which have for their foundation a certain sense or meaning, idea or conception. *To find out this sense or meaning, to unite it to the idea or conception which that part of the sentence is intended to express,* is the fourth thing required for understanding a language.

He who has progressed so far as to fulfill these conditions, to satisfy these requirements, has laid for himself the best foundation—has opened for himself a road which will surely lead him to his aim—to be able to express himself in refined and elegant language.

The foregoing indicates of itself the most efficient means to be used by the teacher in order to accomplish the purpose of instruction in language. I will make mention:

1. Of such means as do not immediately fall within the sphere of instruction indicated as belonging especially to the method of teaching language.

a. *The teacher, in all the instruction which he gives, must study a strict order of thought, and an easy and simple manner of presenting his thought.* Every lesson upon a given subject must be a dis

course complete in itself, whose separate groups of thoughts the teacher has so to divide, give prominence to, and distinctly mark, that they are clearly distinguished by the scholar's perception also. The more smooth and measured the recital of the teacher, or his description of subjects belonging to the domain of natural history, or other subjects, the sharper he, on the one hand, draws the line between the separate thoughts, while, on the other, he makes his pupils also sensible and conscious of the relation of the separate thoughts to each other, so much the greater will become the capability and inclination of his pupils to direct their attention to the unity of the discourse, and to arrange, in their proper order, groups of thoughts, according to their divisions and subdivisions; in a word, to understand the discourse.

b. *In all recitations the pupils must be accustomed to give their answers in the form of complete sentences, and, by degrees, to express themselves more and more fully in regard to what they have heard or seen.* Such a demand upon the scholar forces him at the same time to follow the teacher with the strictest attention. Thus it is judicious perseveringly to maintain with the pupil a loud, distinct, and smooth tone of speech. The pupil must also learn to take time for his own utterance, to observe his thoughts, their order, and connection.

c. In the reading lessons, instruction in language is to be worked in by establishing the habit of loud, distinct reading in which the punctuation marks, or dividing points are rigorously observed. Every sound, every syllable, every word, every phrase, every simple sentence in a compound sentence, and also the latter itself as part of the whole, must be brought out well cut and sharply defined by the voice; thereby the scholar finally attains also to the conscious p reception of every separate thought contained in the piece read, together with the images and ideas thereof. It becomes continually more and more possible for him to gain an insight into the organism of language in its unity.

d. *The teacher must read to his pupils with clear, distinct accentuation, suited to the meaning, every piece selected as a reading lesson.* The purpose of this reading by the teacher is to furnish the pupils with a necessary model, and, at the same time, to make

it easier for them to understand the piece; and it is principally by the manner of accentuation—something which cannot be expected from children—that the reference and relation of the thoughts to each other is made intelligible and comprehensible.

In the uniform application of the four means mentioned, more will be gained in enabling learners to understand and use written language than by all other methods heretofore in use.

[*For the California Teacher.*]

SENSE-PERCEPTION, OR OBJECT TEACHING.

TRANSLATED FROM THE GERMAN BY MRS. LANE.

A. WHAT IS SENSE-PERCEPTION TEACHING?—Sense perception teaching, or object teaching, is instruction concerning objects perceived by the senses of the child. This perception is divided into two classes, viz: first, of those objects of which the senses take direct cognizance; second, of objects not present, and in regard to which imagination or memory must be called to aid the senses. Instruction here is oral, and consists in so directing and influencing the child's perceptions that he acquires a clear idea and distinct impression of the object viewed, and is able to express his knowledge of it.

This branch of instruction is so important that it may well be called the *soul of elementary teaching.* Comparing the mind of the child to a field, proper sense-perception instruction includes everything which animates it and makes it fertile, and we may well agree in opinion with those who exclaim: "Away with reading and writing in the first school year; sense-perception teaching should be its alpha and omega." Let us consider:

B. WHAT OBJECTS SHALL BE SELECTED FOR INSTRUCTION.—We would answer, as a general thing, those objects which come within the sphere of the child's life. This, however, does not completely answer the question. As in all other instruction, here, too, we must advance from what is most readily perceived by the eye to what is more difficult to perceive; the most difficult being what we may call indirect perception, where the object is not directly present to the senses, but is presented

through the medium of the memory or the imagination. Hence near objects with which the child is familiar should be selected—those whose size renders them easy to be viewed. In this respect, what better than the child's own body?

By degrees, introduce such things as are less familiar to the child, and whose size renders them less easy to present to the eye. Finally, when the child's mental development warrants it, proceed to objects of indirect perception.

C. IN WHAT MANNER SHALL OBJECTS BE PRESENTED IN SENSE-PERCEPTION TEACHING?—*a.* This instruction is most successful when the *natural* objects are presented directly before the child. This way is most attractive to the child. Look at him and you will see a certain expression of joy on his face at *finding* so much in these familiar and often insignificant objects, at *hearing* so much about them, and, finally, at being able to *say* so much about them.

b. Models, or *casts*, are tolerably good substitutes for the natural objects. In this case the teacher can select this or that object from among the child's toys; for instance, a wagon, a house, a drum, etc.

c. When we have neither the object nor a model of it, representations or pictures of it will, to a certain degree, answer our purpose. I say to a certain degree, because if these representations are not quite large and distinct, and especially intended for object teaching, they hinder more than they help; better, then, to have recourse to chalk and blackboard.

D. WHAT FORM OF INSTRUCTION IS TO BE ADOPTED?—Although in this kind of instruction the teacher must impart before he can receive, the chief feature should, nevertheless, be a progressive, or gradually unfolding system of questions. After the child has examined the object carefully, and in various ways, the teacher has so to work that the child shall have a clear knowledge of his perceptions and received impressions, and be able both to recount what he has learned to himself, and, although in his own way, to express himself thereupon to others.

In regard to the answers, let it not be forgotten that the teacher should never be satisfied with single words, but must insist upon it that the answer shall always be in the form of a

complete sentence. At first, this indeed involves great labor; but after a time it will be accomplished. Where the children are absolutely incapable of understanding what you mean by this, there is nothing left for the teacher but to cause the child to repeat after him the complete answer; and this not merely once, but over and over again, till the child has learned the difference between a complete and an incomplete answer.

Of course, the answers are to be spoken loudly and distinctly. If the class is generally inclined to speak in too low a tone, it is exactly in this branch of instruction that it is easiest for the teacher, by some little digression, to improve this failing. There are always a few scholars present who speak out with a clear voice, and these are to be held up as models to the faint-voiced or faint hearted ones.

One important and indispensable thing in this department of instruction is *chorus* speaking. In the first few weeks, especially, is it advisable to have every correct and complete answer repeated in concert; and later, although it may be somewhat neglected, yet such exercise should never be entirely omitted.

After the teacher has said, and caused to be repeated by the class, all which he had in view in regard to the object under consideration, then should follow a review, in which the teacher should, by questioning, draw out again from the children what has already been shown and said of the object in its different parts. It is advisable, also, at fixed times, to review previous lessons.

Finally remains yet one task for the instructor, viz: the combining (of course, we mean as far as practicable) of the individual particulars learned. This combining of perceptions and ideas received through the senses is, indeed, no light mental labor; and for little children it must first be taught—the road must be broken for them. It is enough, at first, if they learn to unite two short sentences. Even in the higher classes it is almost impossible to obtain from the pupils a perfect exercise of this kind, in which all that has been learned is presented as a well rounded whole; and hence the primary teacher should avoid making so high a demand upon the little children. Let him ever bear in mind that he is never to go beyond the capacity and mental strength of children.

E. GENERAL ORDER, OR TRAIN OF THOUGHT.—As there is no medicinal agent suited to all diseases, so here there is no method universally applicable to all cases. Perhaps, however, a few general starting points may be given for the course of conversation; these to be abridged, or amplified, according to the nature of the object discussed. Such a general train of thought will be as follows:

1. Name of the object. (The owner; where found, where usually kept.) 2. Nature of the object. (Meaning of its name; joining together of words composing name.) 3. Parts. (Relation of parts to each other; perhaps, also, principal and lesser parts.) 4. Form. (Size, weight.) 5. Material. 6. Color. 7. Maker. 8. Use. (Use of separate parts.) 9. What can be done to it? (Moved, broken, polished, cleaned.) 10. What must not be done to it? (Let fall, bent, played with, wet.) 11. Comparison. (With older children, or those who have been trained to think.) Attention may also be drawn to 12. Symbolical signification.

If any one be inclined to find fault with this diagram, or if any one wish, perhaps, to place the parts before the nature, or the color before the material, let him do so; the facts remain the same.

F. PURPOSE OF SENSE-PERCEPTION TEACHING.—This purpose is threefold:

1. *Sharpening of the Senses.*—Of children may be said: they have eyes and see not, ears and hear not. But to them this is no reproach; for the mind still slumbers, the steersman of the eye is yet unpracticed, the soul's photographer too inexperienced. How much escapes our own eye, which, nevertheless, lies open and clear before us. Only when a well versed expert approaches and directs our eye, draws our attention to this and that, do our eyes first open. But now, after being brought to a certain standpoint, we ourselves discover much which we did not before see.

What to us is a master-work of art, or a complicated machine, to the child is often the most simple object. He sees a slate, but he does not see that it has four corners, and that the frame is composed of four pieces. Such seeing, such intelligent seeing, is to be practiced and promoted by this method of teach-

ing; the sense of sight is thus to be cultivated. The same with the senses of hearing and feeling, so far as lies in the province of this branch of instruction.

Sense-perception is the foundation of all our knowledge and ability. If, then, we lead our children to correct and clear perceptions, and prepare them with attentive eye and ear for all which they see and hear, so do we provide them with a watch-word which shall be an important aid to them, not only in the lessons of the school room, but throughout their whole lives.

2. *Sharpening of the Mental Powers.*—Sense-perception teaching enriches the little pupil, not merely in ideas, opinions, and conclusions, but it also gives him—or, at least, ought to—the power to form the same for himself.

If, now, this method of instruction be, as all rational, sensible teachers have proved it, so excellent a whetstone for the mental powers, why is it that we find, here and there, warders of schools to whom it seems to be a thorn in the eye, and who, therefore, cannot endure it? The "*why*," I know; and many others know it, too.

3. *Creation and Cultivation of the Power of Language.*—Even to those who have had but a few weeks' experience in elementary teaching, I need not remark how exceedingly helpless are the little ones (with a few exceptions) on their first entrance to school, in the use of their mother-tongue, and how poor they are in words.

Although this want is in part natural, and hence excusable, yet it is not wholly so in all cases. Oftentimes it is the fault of those who have previously had the training of these children.

If the elementary teacher has, in all other branches, opportunity to lift, as it were, by the arms, out of this twofold poverty, this is markedly the case in sense-perception training. Here the especial purpose, the aim ever in view, is, in every lesson, to enrich the vocabulary of the little learner—to improve his grammar. This can and will be effected if the elementary teacher proceeds with the greatest possible clearness—if he advances slowly, and does not lose patience. Tiresome, indeed, is it, and a thing to which not every one is suited, to speak and to question for long hours of things which in our eyes are most insignificant; to torment one's self with some simple form of

expression, sometimes for a quarter of an hour at a time, before it becomes understood and fixed in the mind. So much greater, however, the pleasure with which one later observes the child's fluency and wealth of words.

G. WHAT SYSTEM SHALL BE FOLLOWED IN THE SELECTION AND ORDER OF OBJECTS TO BE CONSIDERED?—*Denzel* gives the following: 1. The school room, and what it contains. 2. The school. 3. The human body. 4. Domestic and family relations. 5. The parents' house. 6. The city, or town. 7. The garden. 8. Fields, public squares. 9. Trees, or woods. 10. Mountains, hills, valleys. 11. The water (springs, brooks, rivers, bays, seas, oceans.) 12. Boundaries. 13. Animals. 14. The sky (clouds, sun, moon, stars.) 15. Changes in Nature (day, night, seasons.) 16. Nature in general, and the human race.

Knauss, in his excellent book, *The First School Year*, divides the subject matter into groups corresponding to the four seasons of the year, whereby the reference of the single object to the proper season may, indeed, introduce very intricate relations.

Krause, whose *Exercises in Thinking* (3 vols.), although sometimes overstepping the limits of the course, and from whom the elementary teacher, and especially teachers just commencing their profession, may learn very, very much, makes this division in his work: 1. Exercises in making distinct impressions from sense-perceptions. 2. Exercises in creating conceptions or ideas from impressions. 3. Exercises in combining ideas so as to form opinions. 4. Exercises in drawing conclusions from opinions or judgments formed. With children from six to seven years of age this last exercise should only be touched upon in the slightest degree.

Most practical teachers certainly agree herein, in that in this kind of instruction less depends upon the "what" than upon the "how."

For my own part, seeking, in general, not to lose sight of the old rule, "From the easy to the difficult," and endeavoring to consider from every possible point of view the object studied, I strive to teach the pupils to form very early—the earlier the better—from previous separate studies, limited, well-rounded, and the most complete descriptions possible. But in sense-per-

ception teaching this old rule is only of relative value. Give to a teacher, unskillful either by nature or from want of earnestness, the most simple object, and he will use it to no purpose except as a means of vexing himself and of worrying the children. On the other hand, give the most complex object for a study to a skillful teacher, and he will know how to seize hold of it, and to transform its bones into milk, or, at least, into pap.

I hold, therefore, that the most important principle in the selection and order of objects for sense-perception teaching is that they shall be strictly practical, viz: 1. Objects convenient to handle and to view. 2. Objects with which the child is familiar. A tuning-fork would be a convenient, but not a familiar object. The teacher should, in his selection, take into consideration the locality and other relations in which his pupils live; for instance, in a large city he would not select a churn for an object lesson to little children. 3. Objects which may be examined in many ways, and to which many things may be connected.

[*For the California Teacher.*]

PRIZE ESSAY ON FROEBEL'S KINDER-GARTEN SYSTEM.

Froebel gives the highest rank in his kinder-garten system to active amusements. He did not, indeed, begin with this idea; for, as a follower of Pestalozzi, his efforts in, and his ideal of, education sought in science alone the foundation, the basis, of Pestalozzi's sense-perception principle. Later, however, he considered active and entertaining exercises of the greatest importance. This view of Froebel's is clearly to be perceived as early as the year 1807, when he undertook the education of two sons of Her v. Holzhausen. He stipulated that he should be permitted to reside with his pupils in the country, and to combine with scientific instruction suitable practical rural occupations, gardening, and other physical exercises. Although Froebel, at this time, spent much labor on his toys or gifts which were to be founded on mathematical principles, seeking to bring the same into a system of successive steps, it was, nevertheless, while fulfilling this engagement that he laid the foundation of his future method of systematically arranged active exercises.

If every teacher kept in mind the ancient proverb, *mens sana in corpore sano* (a sound mind in a sound body), this was certainly Frederick Froebel. The more he reflected upon it the more it became the motto, the leading thought of his educational plan. He had learned that motion is the original force of all things; that it produces life; that it preserves life. And if Pythagoras, with whose system of philosophy the principles of Froebel were, perhaps, most nearly related, maintained that "the essence of the world is numbers," so we also find Froebel, in his views of nature and man, announcing the principle that "the essence of the world is motion."

Froebel's fundamental studies of the natural sciences and mathematics, his deep-searching insight into Nature, his unceasing, infinite love which attracted him to childhood's tender age, these it was, which, after he had perceived the all-controlling power of motion, led him to announce the highest of those principles which composed his system of education, to be the following:

The child is to be developed—that is, to be formed from *within* outwards—by the harmonious unfolding of all the powers and impulses dwelling within him; while, on the contrary, the acquisition of all knowledge which comes merely from without, beyond himself, is to be avoided. This is to be accomplished not by dictation and repetition, but by perception, conception, speaking, doing, and creating.

This development method of education corresponds to the child's impulse or instinct for motion. The smallest, most delicate child the nursling, after a short period of rest, exhibits the impulse to grasp something with its little hands, to throw out its feet, to press itself against something. This is not merely a token of its physical well-being, it is rather an attempt to use the powers it possesses. By degrees it seeks to raise itself up in its bed, to free its limbs from tiresome constraint, and very soon it exerts itself, often with great effort, to stand upon its feet. The loving mother is its watchful, unwearied guide in these attempts; she delights in the progress her child makes in these trials of its strength. But she often deceives herself, rating too highly the measure of the child's strength which increases but slowly; oftener still does she seek to restrain its motions, to repress the exercise of its powers.

Hereupon Pestalozzi lays down the principle that "the first hour of the child's education is that of his birth."

Although this education relates first of all to the bodily functions of the infant, yet is the mother also to begin early to keep in mind the mental health or welfare of the child. "On the one hand, she is not to hold him back from anything of which he is quite capable; on the other, she is not to burden, to embarrass him with that of which he is not yet capable." Pestalozzi begins at the child's cradle, with the A, B, C of sense perceptions. He desires that even to the nursling such impressions of the outer world shall be given, shall be designedly brought before its senses, as corresponds to its own desires, and which are salutary to its bodily and mental development. Together with this attention to the earliest impressions upon the child's perceptive faculties, he recommends to mothers that they observe in what the child is most ready and dexterous. Each individual possesses an inherent tendency to one or more characteristic excellencies; these tendencies are to be confirmed in the kingdom of the senses. To effect this it is necessary to study the manner in which the individual's powers can best be developed; holding to this as a guide, we may then be able so to train his senses, so to train his physical being, as to promote our race's advance in the wisdom and virtues of life. This training of the senses is to be recognized as the leading strings in the child's pupilage in goodness, and to this it is to be held until sense-ennobled by this guidance, and no more in need of leading strings, it is raised to self-dependence in ripened virtue.

During his long and felicitous life was Pestalozzi thus endeavoring to point out to mothers how the child may be brought up in the household circle from the cradle to his sixth year. "The child," he says, "must be incited to a healthful activity; instead of carrying it discontented upon the arm, the older children instructed therein, are to play with the little one, and fraternal love, oft disturbed when this is made a mere office of watching and care, will rather be increased when made a mutual pleasure."

While Pestalozzi was thus, even in his latest years, endeavoring to urge on the activity of the child, Frederick Froebel was the true discoverer of the child's *impulse to activity*. Thereby

was Iverdon's great principle of teaching first introduced into the region of reality. Froebel says: "Man is like his Creator, a creative being. God created matter and space; man limits them. God creates the infinite; man the finite." The education to this likeness to God should begin as early as possible, for "even in the child the creative forming principle early shows itself, and that, too, in a high degree. So soon as it can independently move its limbs it begins to handle matter, to move it and turn it, to separate it and unite it. Hence from that period it is to be considered and treated as a creative being, to be made capable of and perfected in self-creation. In the nourishing of this natural impulse to action, and to the care and attention given to the first employments of the child, everything is linked, and from the same must proceed everything which is to be done for the human development and education of the child. The impulse to activity corresponds to the triple nature of human action—"to do, to feel, and to think."

Froebel would deprive one-sided *verbal* education of its former importance, and, at least in the first steps of education, dispense with it, opening a way to education through *doing*, by which thought and work, perception and action, should be inseparably combined. According to his clearly expressed meaning, verbal instruction is to be thrust into the background, and education and the consequent training of the creative forming principle be begun and continued from the cradle onwards.

Thus Froebel, according to his idea of education, combines all education of young children with *doing*, whether it be either as infant to that of the mother, or, later, in its kinder-garten days, to that of the pupil, to his plays and occupations. "The activity and senses of the body of the infant," he says, "is the first germ, the first expression of the physical powers; playing, building, and shaping, the first blossoms of youth; and this is the time when the human being is to be fertilized for future activity, industry, and capacity for labor." The healthy child will be active; therefore it is indispensable that its surroundings so correspond to this impulse as to nourish and promote it. By action, spontaneous action; by occupation, self-occupation, the child grows; next comes the act of beholding, of looking upon; this is explained by speech, by words; and this in turn awakes thought.

On the means by which skill and dexterity are to be introduced into life, Pestalozzi and Froebel perfectly agree. "The child must be incited to a salutary activity through the medium of play." But while Pestalozzi would have this incitement intrusted to an older brother, or sister, directed to do it, Froebel would place this guidance in the hands of the mother, and of women and young girls especially trained for the purpose. While Pestalozzi made the confined family dwelling-room the scene of the child's earliest training, Froebel created a spacious educational institution, to which he gave the poetical name of kinder-garten. The plan of the institution not only admits children of from three to seven years of age, but has a system of exercises corresponding to their bodily condition. It strengthens the body, trains the senses, gives employment to the awaking mind, and makes it sensibly acquainted with nature and the world of man, guiding mind and soul, and leading each little one into harmony with itself. In order to accomplish this proposed purpose, Froebel has resource to active exercises, and then to the gifts and industrial devices invented and reduced by him to a system. His means of instruction also embrace, although only in the commencement, gardening, rambles in the open air, singing, story-telling, explanation of pictures, and the religious element. The final aim of this method of education is the forming of bodily and mentally healthy human beings. While active plays, working in the garden, and rambles, develop chiefly the limbs and the whole body, as well, also, as the power of the will, Froebel's gifts and industrial devices, combined with singing, narrations, and explanations of pictures, form and cultivate the senses and the mind of the child. Both harmonize and mutually support each other, even as the body and soul of man sustain each the other, and form a harmonious whole.

Froebel's series of gifts is formed upon a mathematical basis. Stereometrical bodies and planimetrical figures are placed in the hands of the child. Froebel thus wholly deviates from the customary toys of children, without, however, rejecting them. He often observed that children wearied and tired of their toys; he saw them busy themselves with tools so unfitted and ill-adapted as in different and later stages of life would arouse the

deepest sympathy of the philanthropist, and serve as an earnest admonition to improvement and remedy.

"*Kommt, lasst uns den Kindern leben!*" he exclaims; that is, let us stand by them and assist them in their wearisome labor; and then from the depths of his thought he utters this sentence: "Let toys be the means by which we develop the bodily and mental life of the child, as by means of implements we fashion and frame external life." In reference to mathematics as the foundation of his system of education, he says: "Mathematics gives to man a fixed point, a sure guide, for the study of the inner connection existing in the multiplied diversity of Nature. Without mathematics, human education is an instable fragment and botch, and places insurmountable limits to the development for which man is destined; for the human mind and mathematics are as inseparable as the human soul and religion."

[*For the California Teacher.*]

CRUMBS OF LITERATURE.

I.

If some of our Grammar School scholars knew a trifle less about percentage and square root, and a trifle more about Shakespeare and his brethren, might it not be an advantage? First grade girls have been known to say that Shakespeare was an American poet, and that Chaucer died a few years ago; and I have heard it confidently asserted that first grade boys know, as a general thing, considerably less about literature than the girls, the former usually confining their reading to DuChaillu, and the latter to Caroline Lee Hentz and Mrs. Southworth—not mental food of the best quality, perhaps.

The study might be made a very interesting one, even to the dullest and most formless minds. A list of works, whose titles are the least interesting part, might easily be dispensed with; also, the exact date of an author's birth and death. But if the most celebrated authors of English and American literature could be grouped in the centuries in which they lived, and some idea obtained of the general style of their works, it would be a

very great deal gained to the young minds, which, with all their square root and percentage, are mostly groping around in the dark.

In order to awaken an interest and fasten individualities upon their minds, a system of anecdotes might be found useful; frivolous in themselves, perhaps, but not frivolous in their effects, if one scholar in ten feels therefrom a desire to know *more;* and, frivolous or not, a great advance on Mrs. Southworth and DuChaillu, whose influence we know, even if we ignore it.

We like to know about the little foibles and follies of our favorite authors ourselves. We like to go back of great books, speeches, or pictures, and find that something from which the book, speech, or picture was made—the individuality of the maker.

Perfection is not in the least to our taste. We have considerable sympathy with the man who wanted to ostracise Aristides because he was continually dinned into his unfortunate ears as "The Just;" and while we know that noble works cannot come from mean and petty souls, yet we enjoy hearing what a glutton the ponderous Johnson made of himself on boiled leg of mutton, and read with no small interest of Byron's rakishness, and Dickens' separation from his wife. We seem to forgive them their mountain tops if they come down sometimes to our plain.

Our pupils might not be interested in knowing when Chaucer died; for to ourselves only the shadow of Fame lingers over his name, and his glowing words are rusty on our modern tongues; but they and we will readily remember that he hated monks and loved his ease; and open ears wide at the legend, true or false, that he escaped from London Tower by turning traitor to his comrades.

The Instauratio is a hard name, and savors too much of word analysis to be interesting; but let us talk of Bacon, the mean, unscrupulous politician: "The greatest, wisest, meanest of mankind." The man of wonderful genius, writing books with one hand and taking bribes with the other; the man who painted devoted friendship with his pen, but practised towards his true, good friend ingratitude. The Lord High Chancellor

of England, winning in his prime the highest honors which royalty can bestow, having fine houses, broad lands, trains of servants, hosts of so-called friends, yet falling, falling, falling deeper and deeper into the mire of bribery and corruption, until we behold him in his old age disgraced, convicted, banished, no longer envied and admired, a poor, petty, miserable schemer; and they will be too interested to forget.

The Arcadia is dusty upon our library shelves, but who does not love to read of Sir Philip Sidney, that star, almost alone in the crowded sky, whose lustre no cloud has ever dimmed. His life was a more perfect poem than his pen ever wrote; brave even in *his* courageous time, and full, too, of *moral* courage; ambitious, indeed, but not for himself; proud, indeed, but not of himself. Beautiful and pure, gentle and noble, and chivalrous of heart, the darling and glory of his country! And his death as worthy of his life, their hearts will thrill to hear of the young soldier on that bloody field of Zutphen, who, with a soldier's dying thirst, burning tongue and brain, motioned away the solitary cup of water which was held to his parched lips, with those sublime words of self-sacrifice: "His need is greater than mine." That battle amid whose smoke he died was one of right and liberty, against wrong and oppression, and it was meet that he should close upon such a battle-field with so holy and heroic a deed, a life which had neither speck nor flaw.

Of Shakespeare's works we could tell them more; tell that at his name the others, however great, fall back abashed. They have seen the names of Macbeth, and Coriolanus, and Julius Cæsar on the play-bills, we may be sure—the boys at least; and it would not be difficult for them to straighten out in their minds the little that they know, and add considerable to it. Authentic anecdotes the critics have not left to us; their exasperating researches have taken away the little that we had, and given us nothing in return. That little story of his poaching was a great satisfaction to us; but it was first questioned, then doubted, then scouted. We are told this might have happened, that that is probable, and the other is possible; but we are chary of our belief when the ground slides away from beneath

our feet in that style, and we should feel rather guilty to hand to our pupils such very slippery ropes. It is a consolation to reflect that our divine Shakespeare has at least proved the Juggernaut of many of these commentators, and left them mangled by the wayside.

It is not necessary, we could not expect, and indeed would not wish them to read Paradise Lost, until many years have passed over their heads, and many, many thoughts through their minds. It is only through time and pain that our hearts can take in and respond to the words of a long-suffering man. For them is the poetry of youth; Milton's is written for a riper age. Yet they might learn much of the rugged, stern, much-enduring old Puritan, whose noblest qualities, like certain seeds in the ground, needed the pelting of fierce storms to make them grow. He was so petty in one way, so noble in another, he *could* not bear to be contradicted, yet he could bear, and did, with calm and heroic patience (and, after all, patience is the highest type of heroism), blindness, poverty, persecution, and neglect. "They also serve who only stand and wait." The pathos goes straight to the heart! He was charmingly human, for he quarreled with his wife, and domineered over his three daughters with pitiless tyranny; he decorated his dwelling with the fine hangings from dismantled Whitehall, which was rather poor humanity, in fact; and for all his "face as fair as an angel," his heart was only a man's.

The name of Alexander Pope is not one for them to be ignorant of, although he could hardly be held up as worthy of either admiration or respect. He was born into the world a poor, tiny, mishapen child, and even his genius could not make his mind otherwise than poor and miserable too. In his literary work he had no troubles, no obstacles; none of that vexing delay "which maketh the heart sick." At sixteen he was recognized a poet; at twenty-five he was already a veteran in the world of letters; and, rare quality in a poet, his most pitiless critic was *himself*. But Pope's days were full of bitterness, for all his satisfied ambition; he lived, essentially, "in the world," and he was so jealous, malignant, and revengeful, that he poisoned the springs of his own life.

We despise, in all our anger, the wasp which *stings;* and we

can call Pope nothing else, when we think of him in his study, ignoring all claim of friendship or gratitude, and embalming in the amber of his irresistible satire the personal defects of those who should have been sacred, because they had been his guests; but he tickled the world, and gained the victory by turning the laugh against his enemy. No doubt, every lash of the whip, every hateful sneer, every stabbing epithet, was a salve to his wounded self-love, and brought to his shriveled heart a glow, which no deed of self-denial, or valor, or love, could ever rouse there. We feel that he is so fenced in with his own narrow interests, so absorbed by his petty pursuits and his petty jealousies, that he possesses none of that broad understanding of human nature, none of that going out of his heart into other hearts, which goes far towards making a poet. We could *tell* our boys and girls more of the Dunciad than we would wish them to *read*. His satirical humor does not stir the noblest or best feelings, and his tenderest pathos starts no tear. We may admire, but we cannot throw down the book with warm enthusiasm and thrilling blood, and cry with unbounded admiration, "Pope was a genius!" The character of the *man* shines out too much in the work; the epicure, the careful, jealous, malicious author; the capricious friend whom a little scorn or a little slight would convert to a bitter enemy, there is through it all such a miserable leaven of selfishness, that we would hardly care to have the young minds know him too well.

C. G. D.

[*From the New York State Educational Journal.*]

ARE SCHOOLS BETTER THAN THEY WERE?

It is the fashion, at Conventions of Teachers and elsewhere, to ridicule schools as they were, and to talk much of progress and improvement. So general is this custom that a listener is disposed to wonder whether there were in the olden time any schools deserving the name, and to pity his ancestors for the ignorance for which they cannot be blamed. But if the question at the head of this paper were put to vote, even in a convention of teachers, the result would not be a universal *aye*, or

it would be so with serious mental reservations? And certainly many men and women in every community have grave doubts on this point, and either boldly deny the fact, or modestly assert that they *suppose it must be so*, without being able to see precisely where their superiority begins.

No one covets the name "old fogy," but in these days, as at all times, *conservative* is a word of respect rather than of reproach. Probably few of those who exult in being noticed in reports as "live teachers" would risk their reputation by throwing a shadow of doubt upon the assumption that all the innovations of the day are substantial improvements, but in the presence of many of them a true conservative pauses, and puts the perplexing, the sometimes staggering question "*wherein* is this better than the old way except in its claiming to be so?" Not a few, who cannot analyze a method and expose its sophistry, yet see that sophistry is hidden in the process, and some, it is true, shake their heads sagely and are confident that teaching has been one of the lost arts, since *they* left school.

What shall be the test; the comparative cost of education? the nicety of grading, the completeness of the superintending, the frequency and minuteness of written examinations, and the comfort and even elegance of the school houses and their furniture and equipment generally? the learning of the teachers and the grade of their diplomas? Shall it be the "graduating" exercises, and the "concert recitations," the receptions, and the re-unions, and the associations of alumni? Or shall it be the new text-books on either the "production" or the "objective" method, and the teachers furnished with all the modern improvements, and the "*professional*" spirit instead of the pedagogical spirit? None of these; but the result in intelligence and character of the individual; the *opportunity* which the system of schools gives to all, and the extent to which the school *reaches* and *influences* and *educates all*.

Most assuredly our schools make a better appearance. Subjects are taught in them which the fathers never dreamed of in their philosophy. Science in all its branches has been brought down to the level of the meanest capacity. Diplomas of all sorts are plentiful as leaves in June. Everybody is a graduate of some "institution," and most teachers are "Professors."

The Regents examine us, and the Superintendents inspect us, and both publish report after report on every conceivable point in education. The teachers in town, county, State, and nation assemble in convention and resolve this and that in an ecstasy of self-admiration, and visit a new place next year—the Springs, or the Falls, or the Mountains and the Lakes—and repeat the same pleasant and inspiriting programme. Is the wish in their case father to the thought, or do they speak the words of a too easy credulity, and follow the lead of the over-sanguine who put the show for the substance? The number of weeks of school-time, and the number of hours in school per diem are continually shortening, vacations are growing longer and holidays are multiplying; is *this* the point of excellence? Time must be found for what in the days gone by would have been thought mere fancy work; almost every teacher has his hobby; this one *drawing;* that one *elocution;* a third *impromptu compositions;* a fourth must have an immediate change of text-books; a fifth a new system of credits and reports; a sixth must "introduce" gymnastics, or intellectual algebra, or the diagram system; and none of them can be happy without his special contrivance; is *this* the excellence of modern schools? These might co-exist with the greatest improvements, but only as incidents, certainly not as essentials, and hardly as necessary indications. They might all go along with perfect schools, perhaps, but they could not be the source and spring of improvement, nor proper cause of too much boasting.

Pupils in our schools do, certainly, learn more—that is, they go over or "through" more books and pass more examinations; but it does not follow that they really *know* more. The quantity they receive and give forth is vastly greater; but what proportion of all this do they "mark, learn, and inwardly digest?" Many schools do, certainly, make a good appearance; but do their pupils learn a true and simple obedience, a proper self-restraint, a constant courtesy of manner, or are they only repressed for the time being by the array of laws and regulations, and do they come to think they may do elsewhere with impunity and without guilt what is forbidden at school, and that all these pertain to the school boy in school, and not to the man in the world? Is truthfulness a more common virtue than

it was? is vulgarity of speech, is uncleanness of thought and act when the teacher's ear and eye are removed, less frequent? Are such things any more a part of the ordinary teacher's burden then they were? If not, we impeach the schools of not "keeping up with the times," instead of lauding them for being anything like the bulwark of our liberties.

On another side we have a few questions to ask. The village school is better; but how about the "rural district?" Are the smaller schools away from the centers of business and growth, improving or retrograding? Do the schools at the cross-roads, on the hill sides, in the new and sparse settlements, receive a due share of the impulse of progress? And in the villages and cities are there more or fewer street Arabs? more or fewer who do not get even the rudiments of the poorest education? more or fewer who can find no place in our theoretically graded schools, and for whom *no other provision whatever is made?*

On still another side, a question. Is the spirit of our teachers better? Are they as a whole more devoted to teaching as an occupation in which they find something more than daily bread, more than the means of making a better appearance, or of being in positions supposed to be more respectable? There are, and we rejoice to say there are, many noble men and women engaged in teaching; but of the thousands are the *majority* devoted to the calling for the sake of that calling, or for their *own* sake?

It will not be taken as answer to these questions, which are not raised in a fault-finding spirit, for some one to describe the old school house, and the old pedagogue, and the spelling and parsing classes. That we can do for ourselves as well as any body can do for us. Nor will it do to fly off into glittering generalities about "progress" and "improved methods" and less severity of government; all that is admitted with qualifications. Nor will it do to assert again "that teaching is a profession."

The question has two sides: it is raised seriously, for it has been, and is, seriously thought of. Are our schools *on the whole* better than they were? No.

[*From the New York State Educational Journal.*]

TECHNICAL EDUCATION.

The complaint is frequently made, and with too much justice, that our American education leaves men and women without anything which they can use in actual life, excepting only the power which comes from their mental discipline. It has failed in that, for a great majority of our youth, it has been utterly aimless. To be sure, our seminaries and colleges, for the most part, have been the open doors through which young men pass into professional life; but what does our education provide for the great multitude of young men and women who never see the inner walls of a college? Simply nothing. It turns them out into the world without the ability to do anything, opens no avenue for skilled employment for them, and only makes them too proud to labor with their hands, as they might have done without its influence. It merely deprives them of the taste for labor, and gives them nothing in its place. But more than this. Little Johnnie Jones is told by his admiring school-mistress, or fond mamma, how Lincoln, who was a poor boy, finally became President, and how Johnson, the son of a poor North Carolina corn-cracker, came to live in the White House at Washington. The stories of countless others, who commenced with nothing and became great men, are poured into his youthful ears until he is certain he must have been intended for a United States Senator at least, if not for a President. As he grows older, he forgets that Lincoln split rails, Johnson rejuvinated dilapidated pantaloons, and Grant peddled cordwood in the streets of St. Louis, but thinks that to be great he must shun work, dabble in politics, and hang around grog-shops. He would rather sit in idleness all day on the steps of some corner grocery and wait for a chance shilling, than to work in the garden back of it for a certain dollar. Such men spend their lives in attending caucuses, getting up political excitements, and playing whippers-in for some more successful politician. Ninety-nine of every hundred of them never get as high as County Sheriff, while the majority make a questionable living, and end their lives in the jail or poor-house. It is all right to teach boys to be ambitious, but do not forget the most important part, that honest success always implies labor. Toil is the pathway to honor.

It is a well known fact that in most of our cities and towns it is seldom that young men of American descent can be induced to learn a trade which requires hard labor, as they seem to look upon it as a disgrace, but you will find them sweeping out cigar stumps from law offices, skulking behind the counters in dry goods stores; or, still worse, lounging around saloons and billiard rooms, under the mistaken idea that these are *gentlemanly* (?) employments, and those which require hard work are not. Too many boys would rather eke out a precarious existence as a lawyer, or clerk, than begin as a workman in a machine shop, and by hard labor with hands and brain work up to a position of affluence and honor. The country would be just as well off, and without doubt the members of the profession would rejoice at heart, if not another young man entered the legal profession for the next ten years.

To remedy this aimlessness and disinclination for the active duties of life with which our education leaves our youth, we need more craft-schools, where boys can become practical engineers, chemists, machinists, printers, and even farmers. That the necessity for such special training is beginning to dawn upon us is evident from the rapidity with which scientific schools are being established and filled with students. But all the young men in the country cannot be civil engineers, any more than they can be lawyers, and we must open other avenues equally honorable and profitable for those whose tastes lead them elsewhere. The scientific schools, then, are merely the advance guard of the great number of craft-schools which we will yet have to supplement our elementary education. In Europe we find hundreds of these craft-schools in which one may fit himself specially for any proposed occupation. In the United States, excepting schools for the professions, for engineering, and for mining, we have but little which may be called "craft education." The night and day schools of Cooper Union, some of our commercial colleges, the agricultural departments of most of our State colleges, the schools of drawing and design in Boston, and the Worcester Free Institute for teaching the application of science to the mechanical arts, are the only craft-schools which we call to mind that seem to be doing this greatly needed work. The leading position in drug stores, machine

shops, manufacturing establishments of all kind, the great commercial firms, most of the positions of the government civil service, and many others which might be mentioned, ought to be filled by men specially educated for them. When a young man is to be turned out to fight the battle of life, he ought to be provided with a weapon for the warfare. It would be just as sensible to send a regiment of soldiers into battle with broomsticks for guns, as to turn young men and women into the world empty handed. They can only do as the soldiers would—seize upon the first thing on which they can lay hands, and club their way for a little while before hastening to the rear. We ought as soon as possible to provide every young man with some way of procuring an honest, honorable livelihood, and most of all by our education fit and incline him for hard labor of body and mind as necessity may demand.

[*From the Philadelphia Press.*]

SELF-IMPROVEMENT IN CITY AND COUNTRY.

Education is not knowledge. The most that we are able to get at school is the mere skeleton of learning. The flesh—the living body—most men create for themselves after they leave school, if they ever get to know much at all. The very name education means literally but the leading into, or direction toward knowledge, and a fair start is all that the best education will do for us.

Our rural friends are given to envying the advantages of city people in this matter of education; and very often when the grosser allurements of city life are not sufficiently tempting to attract the better class of youth from their country homes, a thirst for higher intelligence often supplies a motive for dissatisfaction with their quiet way of getting along. There is no doubt but that the means of education are more abundant in populous centres; but it is no less a fact that true knowledge and wisdom, the results of a good education, are seldom achieved by a thorough-bred city boy. Learning, as we find it in cities, is very much of a sham. It is pursued merely as a

means of making one's self agreeable in society. A man who can "converse on any subject" is the envy of his circle. Years are spent in picking up bits of this or pieces of that, till he who pursues this course shines as brass, and sometimes passes for the real gold; but the genuine metal is not there.

It is a remarkable fact that almost all the great men of science were not city-born. Even in public life most of the distinguished either came direct from the farm, or in some way rural life entered largely into their early years. In the city we can gather from books only. We get knowledge but at second-hand. In the country we can deal directly with nature; and by the aid of a good education to put us in the right direction for learning, there is no comparison with the city in the advantages which a country life affords.

The chief attraction of city life to the country youth is the supposed facility for "getting along in the world." So many have been lucky without any great amount of knowledge, that it is natural to suppose that what one man has done another can do. But luck in fortune-hunting never keeps pace with population. The *pro rata* diminishes as places grow older, but real knowledge always tells. A thorough knowledge of any one subject is one of the surest roads to distinction; and with that distinction, if there be but moderate business abilities, riches generally come.

What a grand chance for study the Winter nights in most farm-houses afford! Even in the suburban districts, where it is neither city nor farm, the long evenings are generally free from frivolous visitors, and allow of time to the young to improve themselves. Hundreds of the young who now give themselves to light reading of a doubtful character, or who spend their time in lying on the sofa, or rocking in any easy chair, might become as famous as Tyndal, Agassiz, or Gray, by doing no more than improving the chances which the quiet of farm life affords to study a little regularly in the leisure time as it comes.

Natural history especially offers a very inviting field. It is not now, as it once was, a mere accomplishment. The mere city boy, who can talk about what he has read in the text-books, is nothing in this line now. But natural history has had such a wonderful bearing on the world's progress—such an amazing

influence on the advancement of humanity—that the real scientist has become the pet of society, and receives the homage of the princes of the earth. And this real science is so easy to gain. It comes not so much of reading as of training the eyes to see, and the other senses to take note of the little things about us. Elementary books we must have; these let us know what of that we see is already known. A few standard text-books—a pocket lens costing perhaps fifty cents—a good common school education, and tolerably good powers of observation, are about all that is necessary to give one a fair scientific character.

Many a farmer's boy looks out upon the heavens, wondering what sort of worlds are the bodies moving through the space above him; or thinks how pleasant it would be to see the strange sights he reads of in foreign lands. And yet about him, close under his eyes, are hosts of new worlds waiting especially for him to explore, and which he will find much more wonderful than anything he can find abroad. Let our country boys think of these things. They may not have the glitter and show of a city life, but they have the substantial elements of an education which is fast becoming popular; and they have what city boys have not—the time to intelligently pursue and make use of them.

EDUCATION.

If a pedagogic Newton were to construct a philosophy of education, the fundamental proposition, we fancy, would run somewhat in this wise:

The educational gravity of matter—measured by the mental action it excites—varies directly as the amount of curiosity it awakens, and inversely as its distance from the thinking centre.

Joyous activity of sense and intellect is the truest evidence and most significant attendant of healthy juvenile culture, and whatever means of experience or information most excites such activity is best for the development of mind. In considering what knowledge is most worth at the outset of education, it is therefore necessary to take up a position quite the reverse of that chosen by Herbert Spencer in his able and admirable essay

on this subject, since knowledge having no measurable value in itself—knowledge worth nothing as knowledge—may be of immeasurable value in early culture because it appeals directly and closely to the child's instinct of curiosity, and by evoking germinal thinking sets the mind growing as sunshine does the germ of a plant. The kitten on the hearth, the weed that springs by the door-stone—anything in the little world that hedges him round about—is more serviceable for the child's instruction and culture, if rightly used, and more worthy of his study than the most important matter over the fence and without the sphere of his mental attraction. These are to him what the collections of the museum, the laboratory, the library—all the machinery of higher culture—are to the maturer disciple of learning. And it is the first business of the educator to take up the child's development, at whatever stage it may have reached, and carry it on by these simple and homely means precisely as the advanced science instructor leads his followers along the paths of investigation. In this work method is everything. Right thinking is learned by thinking aright, and in no other way; and right teaching has right teaching always in view as the first and highest object to be secured. Loose, timid, dishonest thinking is too often the result of much teaching; it is never the result of genuine instruction—which is little else than proper guidance in the conscientious pursuit of what is true by personal investigation; a sort of scientific work, we may add, which the child is capable of doing in his sphere as thoroughly well as a Tyndall or a Huxley in his.

One of the most hopeful characteristics of modern primary teaching of the better sort is the increasing recognition of these fundamental truths; a tendency to exalt right habits of learning above recitable results, and a disposition to estimate the value of educational matter by its nearness to the centre of the child-world thought and experience, and its fitness to stimulate and satisfy the instincts and appetites of childhood, rather than by its usefulness to grown up people. Primary instruction is consequently becoming more and more attractive to children; in other words, more and more in harmony with their condition and needs.—*Scribner.*

ERRORS IN TEACHING.—Wendell Phillips, in a recent speech in Boston, stated that the school education in that city was inferior to the system of one hundred years ago, in this—that our grandfathers combined labor with study, teaching the body and the mind at the same time, and that we moderns must return to the old style. This seems very discouraging, when we consider how much time, thought and money have been expended on education during the last century. From some points of view, we seem to have made more progress than was made in any five preceding ages. In large, well ventilated school buildings, simplified text books, and humanity of teachers, we certainly have gained much. We have arrived so far that every one desires education. But now the question comes—What is edueation? Is it going to school during a period of seven to ten years; spending two to three hours daily in study and five hours in recitation; eight hours out of the twenty-four passed in continuous brain work—not brain work of one's own seeking or fancy, but memorizing the thoughts of others; eight hours' use daily of the brain of a growing animal, without any use of his body, his hands, his practicability? Let any grown man or woman try this work for a while, they who have no restless muscles and limbs impelling them to motion and change. Let them try what six, or even four hours' continued mental application will work in their quiet frames. Let them, too, be deprived in their mental drill of individual choice and ambition, as our youths are. Let them have a routine laid down for them regardless of taste or preference, and without any higher motive than emulation, and the desire to make a good show. The fact is, our youth are sacrificed—drilled and crammed into mere clay. And they bear it so patiently, go day after day, and year after year, to have the life and energies taken out of them, and say never a word. Why is this? Because they are so conventionalized and artificialized, that they think it is a sign of reprobation not to like school. So we have every other kind of strike, but no school strike; societies for the prevention of cruelty to every animal but children. Now and then one hears a disappointed parent detail the many advantages his son has enjoyed in learning everything, and that yet he shows no aptitude for anything in particular. Then everybody pities so good a father with so idle a son. But nobody thinks of the victim who has had his head addled and crammed, and his hands

hanging idle by his side, during all these years. Do not our school systems practically teach that labor is not respectable? And is not a practical result of this all head and no manual labor system that we are cultivating a race of positionists, young men and women who despise labor as vulgar and ungenteel, who will not consent to compromise their broadcloth or fine dresses by earning their living, unless in some genteel office? Thus we see this unmuscular, helpless humanity developing every day around us; and we keep on cramming and driving our children through the same process without a thought that the evil and its cure lie with ourselves.

PROFESSOR AGASSIZ ON POPULAR EDUCATION.—What our colleges teach is mainly the traditionary learning of the middle ages—nothing better. Harvard is not a university—only a tolerably well organized high school. The lower schools are of course following in the same track. If this learning were the best of its kind, our condition would be better—but it is only the dregs of scholarship, "and in saying this I wish to be understood to the letter." What is our grammar, for example? It is no longer a living matter, but reduced to formulas from which all the living spirit has fled. What we need is a knowledge of nature—of those forces of nature upon which all industrial science is based, and which lies at the foundation of all our modern civilization. At present the phenomena of natural science are not taught in our common schools with any thoroughness; the reason why clean water should be used rather than dirty water is not understood by the pupils—there is only a prejudice in its favor, and they take it upon hearsay. They ought to know why it is better; they ought to know something about the elements of the soil which they are to cultivate and on which they live. The analysis of soils is no harder for a child of twelve years than the construction of a sentence. Electricity, too—the telegraph by which we live every day—a child of twelve could learn all about that, but he does not. What we want is teachers that shall know these things with thorough knowledge, which is not the case now. The Normal Schools do not educate teachers of the kind we want in this respect. They give instruction in botany, geology, physiology, zoölogy, etc., but it is from text-books alone, and in the poorest possible manner. Our schools are the old tread-mill of knowledge, while they might be made living sources of it; and this applies to the schools of Massachusetts, as well as to those of the United States in general. Indeed, Professor Agassiz thinks it might be easier to start on the new course of education, which he desires to see, earlier in some of the new and less advanced States than in New England, because of the misplaced confidence we have in our present school system.

DEPARTMENT OF PUBLIC INSTRUCTION.

To County Superintendents.—No supplies will be sent from this office except a requisition is received stating *how many* of each kind of blanks are needed. Order at one and the same time all the blanks you may require; do not write to-day for Teachers' Reports, to-morrow for Census Marshal's Reports, and next week for Trustees' Reports. *Do not order in excess of your needs.* Registers are to be used *only* by public schools teachers, and by them *only* for the recording of the school statistics required to be kept by law. Over one half of the registers sent from this office must have been used for some illegitimate purpose. Registers are a very heavy expense to the State, and we must insist that economy be practiced in their use. In the majority of schools one register will be sufficient for several years; and it is not to be permitted that a new register be furnished every new teacher, or at the beginning of every new school year. We are prepared to fill all orders for blanks actually needed; but we are not prepared to furnish enough blanks to turn each County Superintendent's office into a respectable stationery shop. *Verb. sat sap.*

The School Law is at present out of print. In a month or two another edition will be printed.

The following is a list of the blanks furnished by this department. Any blank not enumerated will not be furnished:

Teacher's Certificates.
Teacher's Reports.
Trustees' Reports.
Census Marshal's Reports.
Appointments of Census Marshal.
Election notices for electing Trustees.
Election notices for voting tax.
Certificate of election of Trustee.
Certificate of appointment of Trustee.
Agreement between Teacher and Board of Trustees.
Orders on County Superintendent.
Superintendent's warrants on County Treasurer.
Registers.
Blanks for Superintendent's Annual Reports.
Labels for District Library Books.

County Treasurers are no longer required to report to this office. Will the Superintendents please notify the Treasurers?

For the June examination the State Board has prepared no papers for reading, penmanship, and oral grammar. Each County Board will please frame its own questions in these studies. *County Boards must examine in all the branches prescribed by law.* Complaint has been made to us that one County Superintendent, in order to save time and to finish an examination in *one* day, omitted some of the studies prescribed by law. All certificates granted by that County Superintendent are *illegal*. County Boards should allow candidates ample time to pass their examination. One day is too short; two days, including evenings, is the least time which should be allowed for an examination. County Boards have the power to determine the time in which a paper must be finished; but for the more important branches, such as arithmetic, grammar, geography, algebra, etc., at least two hours ought to be allowed to each paper.

THE BLANKS entitled "Report of County Examination for State Certificates," which are sent with the examination papers, are to be used *only* for reporting to the State Board the credits allowed by the County Board to candidates for State certificates. These credits are to be entered in the column headed "Credits on County Examination." *The next column is to be left blank.* The blank should give the name of the candidate, together with his Post Office address. The county from which the report is sent should also be indorsed on the blank. But the signature for the Secretary of State Board of Examination, the date, and the grade of certificate granted must be left blank. All the papers of an applicant must be sent, including the answers to the general questions, the answers in mental arithmetic, and the exercises, and questions in reading, penmanship, and oral grammar. Every paper must be properly credited. County Boards will please bear in mind that the branches as given on the blank are those and only those enumerated by the School Law, and candidates must be examined in all these branches. The standard cannot be changed by any power short of the Legislature, and if for any studies no papers are sent, or no credits, failure must be marked against them. Papers not properly credited by the County Board, will not be accepted.

The last annual election for School Trustees, being the first held under the provisions of the Political Code, has laid bare what cannot but be called serious defects in the law. Under the California School Law of eighteen hundred and seventy, the Trustees were required to post written or printed notices in at least three public places in the district, one of which shall be the school house, at least five days previous to the time of meeting, specifying the day, time, and place of meeting. If the Trustees failed to give notice thereof, as required, then any citizen of the district might give it; but no such meeting was illegal for want of due notice. The Political Code changed the above provisions to the following: "Not less than five days before such election [for electing School Trustees] the Trustees must post notices in three public places in the district, which notice must specify the time and place of election, and the hours during which the polls will be kept open." It will be observed that the clause of the old law whereby no election was declared illegal for want of due notice, is left out, and, therefore, to make an election legal *full five days notice* must be given. So in the case stated by one County Superintendent where only *four* days notice was given, our decision must be that this insufficiency of notice makes the election null and void. It will be further observed that the Trustees are the only persons who have the power to post such notices; and that the provision of the old law under which any citizen of a district had the right to post such notices in case the Trustees neglected or refused to post them, is ignored by the Political Code. This has certainly worked hardship in the case submitted to us where the Trustees flatly refused to post the required notices. And though notices were posted by some of the electors, and though in accordance with these notices, Trustees were elected by an almost unanimous vote of the district, yet, according to the opinion of the Attorney General, the election is null and void. In this case the remedy is provided for in certain sections of the Penal Code which we herewith republish. (See next paragraph.) In a third case no notices at all were posted. "Notwithstanding," writes our correspondent, "a respectable number of our citizens, parents of children, and of course, interested in the school, assembled at the school house between the hours of seven and nine P. M., and according to the School Law, elected one Trustee for three years, and another for an unexpired term of one year. Now, a petition is in the hands of our County Superintendent asking him to pronounce the

election illegal on the plea of no notice according to law. * * * A great many think that as it was the regular annual election, the people not only had a right, but it was their duty to elect Trustees. * * * Otherwise a Board of Trustees could continue themselves in office indefinitely, provided the County Superintendent would appoint them from time to time." Still the election is illegal for want of due notice. The delinquent Trustees can be punished under the sections of the Penal Code given in the next paragraph. In a fourth case, some of the citizens, finding that the Trustees had neglected to call an election, posted a notice calling a school meeting for the election of Trustees. A day before the election one of the Trustees found this notice, tore it down, posted another notice calling a meeting some hours previous to the time set by the citizens. At the time set by the Trustees, three persons met and elected themselves Trustees; at the time set by the citizens another Board of Trustees was elected. Query: Which Board is legally elected? Answer: Neither. The first Board is not legally elected because no *five* days' notice was given as required by law. The second Board is not legally elected because the *Trustees* did not call the election. No Trustees were legally elected in that district, and the County Superintendent must appoint. We must confess that but for the decision of the Attorney General to the contrary we should have held that in case the Trustees neglected to post notices, some elector might remedy this omission. All who feel themselves aggrieved may find redress under the following sections of the Penal Code:

Extracts from the Penal Code. Section 176—Every willful omission to perform any duty enjoined by law upon any public officer, or person holding any public trust or employment, where no special provision shall have been made for the punishment of such delinquency, is punishable as a misdemeanor. Section 19—Except in cases where a different punishment is prescribed by this Code, every offence declared to be a misdemeanor is punishable by imprisonment in a County Jail not exceeding six months, or by a fine not exceeding five hundred dollars, or by both. Section 661—In addition to the penalty affixed by express terms to every neglect or violation of official duty on the part of public officers, State, county, city, or township, where it is not so expressly provided, they may, in the discretion of the Court, be removed from office. Section 772—When an information in writing, verified by the oath of any person, is presented to the District Court, alleging that any officer within the jurisdiction of the Court has been guilty of charging and collecting illegal fees for services rendered, or to be rendered, in his office, or has refused or neglected to perform the official duties pertaining to his office, the Court must cite the party charged to appear before the Court at a time not more than ten nor less than five days from the time the information was presented, must proceed to hear in a summary manner the information and evidence offered in support of the same, and the answer and evidence of the party informed against; and if on such hearing it appears that the charge is sustained, the Court must enter a decree that the party informed against be deprived of his office, and must enter a judgment of five hundred dollars in favor of the informer, and such costs as are allowed in civil cases.

IN A certain district the candidate who received the highest number of votes was an alien who had taken out only his first papers—that is, only declared his intention of becoming an American citizen. As the candidate was not fully naturalized he was not an elector and not eligible to office. As in the case under consideration, a disqualified person was elected Trustee, the election is null and void, as the candidate who receives the next highest number of votes is not entitled to the office, according to a decision of the Supreme Court in the case of Saunders *v.* Haynes, 13 Cal., p. 145.

TRUSTEES ELECTED at the last annual election must qualify within ten days after their term of office begins, namely, the first Saturday in July. Of course any Trustee has the privilege to qualify immediately after being elected.

COUNTY INSTITUTES.

REGARDING the proceedings of the Santa Clara Institute we quote from a correspondent as follows:

The Santa Clara County Teachers' Institute for the present year was held in the District Court room, San José, April 17th, 18th, and 19th. Superintendent Baker presided. R. E. Hewitt and C. H. Crowell were chosen Vice Presidents, and Miss Alberta S. Montgomery, Secretary. About one hundred teachers were present during the session, nearly all of whom were engaged in teaching in the county. Superintendent Baker delivered the opening address. It was a review of the condition and progress of the schools of the county, and a discussion of leading educational questions. Among the subjects presented for the consideration of the Institute and discussed by them were the following: The Course of Study adopted for the Schools of the State; Teaching Music; Mental Arithmetic; Primary Drawing; Methods of conducting Recitations; Natural History; Methods of teaching Composition: Grammar; Physical Education; Methods of teaching Reading, etc. Evening addresses were given by Professor Leggett on Educational Hobbies; by ex-Superintendent Swett on Evening Schools; and by W. H. L. Barnes, Esq., on Technic Education. The exercises throughout were of a most interesting character. The Institute was pronounced by all who were in attendance one of the most practical and successful ever held. The following resolutions, among others, were adopted: "Resolved, That at present teachers should not be imperatively required to teach the science of music in our public schools." "Resolved, That we consider it impossible in the ungraded schools of Santa Clara County to follow the course of study prescribed by the State Board of Education; and we deem it unadvisable to insist upon carrying it out absolutely." "Resolved, That the thanks of this association are due and are hereby tendered to our County Superintendent for the manly and straightforward manner in which he has uniformly administered his official duties, and for the fair and impartial manner in which he has presided over our deliberations." "Resolved, That the Superintendent would be justified in withholding the salary of those teachers who, without good cause, have not been present during the sessions of this institute."

THE SAN DIEGO COUNTY INSTITUTE convened at San Diego, April 10th, 1873, and held a three days' session. From the opening address by the County Superintendent on "The Object of Teachers' Institutes, and the duties incumbent upon its members," to the closing lecture by the State Superintendent on Botany, illustrated from nature, the proceedings were infused with the spirit of "practicability;" and instead of the time-honored platitudes on the dignity of the profession, and the inverse ratio of its responsibilities to its emoluments, the order of exercises consisted mainly of class and blackboard exercises in the different studies. The action of the State Board of Education of substituting oral grammar for text-book grammar in all but the first grade, was heartily indorsed. Among the resolutions we notice one indorsing compulsory education; another deprecating the too early use of text books; another setting forth the necessity of making five hours the legal length of daily sessions. The members of the institute were so well pleased and profitably entertained that it was resolved to hold another institute within three months.

Up to the present time of writing no minutes have come to hand of the Institutes held in Los Angeles, Santa Barbara, San Buenaventura, El Dorado, Placer, and Siskiyou Counties.

EDITORS' TABLE.

Santa Clara County Institute.—This Institute, held April 17th to 20th, was a pleasant and solid meeting of substantial teachers. There was no twaddle, but a great deal of good sense in the discussions. The whole tone of the meeting was progressive. With such teachers as Lighthall, Hewitt, Kennedy, Hawkins, Finch, and a dozen other sensible men, it was impossible for the Institute to be other than interesting and practical.

Abbreviations.—Dictate this to your first grade classes:

Wall Street, N. Y., December 1, 1872.

Sir—Your's to h'd & cont's noted. Don't want son to study 'str'n'my. 'Twon't pay. No ships run'g to stars, and no prospect of it. All bosh, if 'twont h'lp trade. Also stop Latin & Greek. Boy'll pick up such Lt'n words as petit larceny & delirium tremens, &c., soon 'nough he'r in Gold h'd. I'm bullish on 'rith't'k & sp'g, and T'k some stock in Gr'n'r too, but I can make money 'nough without L'tn and G'k, etc. No use. I'm memb' St'k Exc'g, Chamb' Com', &c. Daholl's Arithm'tic is short of stock terms. Put boy thr'gh on margins, corn'rs, Dr. C., et. pr. et., cl'r house, Railr'ds, and Go'v'ts yourself. and go short on y'r Grk and Lt', &c. They'r best md'ize for the street—alway in dem'd here. I mean Dr & Cr, etc. When term ends please ship boy to Bks by N. Y. C. or H. R. with B. L'dg in hat, cons'g'n to————, B'd st. Draw sight dr'ft for hill. Money easy—st'ks stiff and short int'r'st cov'rd. Shall I get you long on 190 L. S. at 67?. Boy's tuition do for margin. Exo'hge e'sy. Yours, etc.

We learn from the *Evening Argus*, of May 6th, that the Petaluma Board of Education has completed arrangements for opening a High School at the commencement of the next session of the public schools. "It is the desire of the Board to have the High School equal to any in the State, and scholars graduating at the same will be fitted to enter the State University. No pupil will be admitted below the highest grade of the public school. The school building at present will accommodate at least two hundred pupils, and can be enlarged to almost any reasonable capacity. The Board are now casting about for a competent Principal to take charge of the same, and the members thereof are fully aware that the success of the High School will depend upon the selection of a person fully competent to discharge the responsible duties pertaining to the position."

Personals.—J. B. Casterlin and wife, recently from Michigan, are teaching at Hydesville, Humboldt County.....Mrs. Dorcas Clark, who was assistant teacher in the State Normal School for five years, was summarily removed at the last meeting of the Board of Trustees. Probable cause: Some of the Board had a "friend" who wanted the place. Patronage is a big thing.....Professor Gastry is teaching at Clayton.....Professor Hawkins has been elected City Superintendent of San José, *vice* Dr. Clark, resigned. Salary $1,000 a year.....It is reported that Professor Jones, the efficient County Superintendent of Sonoma County for a double term, will not run again for the office, as he can do better in business.....Superintendent Lynch, of Alameda County, will probably be renominated for another term. The county can do no better than to keep him where he is.

Compulsory Education in Nevada.—Governor Bradley having signed the Educational bill passed by the Nevada Legislature, compulsory education becomes a law in that State. Nevada has always evidenced a great interest in educational matters, and

in a return published some few months since, it was shown that the State stood second in the States as to the amount expended per capita for the children attending school, Massachusetts only heading it. Compulsory education is gradually gaining ground. It is now the law in several States in the Union, and in Germany, Switzerland, Austria and Great Britain in Europe. The subject will doubtless be re-introduced in the forthcoming winter at Sacramento, as California cannot afford to remain behind any State or country in the matter of education.

THE municipal authorities of Paris have just opened a "school of apprentices." It is a primary and industrial school, intended to solve the difficult problem of combining general and professional education, and training well-taught workmen. The boys, who are admitted from the age of thirteen to that of sixteen years, are apprenticed to the director for three years, and receive gratuitous education. The municipal authorities have purchased a large site on which the building is erected, on the Boulevard de la Villette. The boys are not lodged at the school, but arrive at seven in the morning, and stay till seven at night. Besides the school-house there is a building devoted to workshops, with forges, steam hammers, and all the machinery and tools for working in iron; the upper floor is devoted to wood-sawing, carpentering, joinery, and cabinet making. Between the buildings is a large garden, playground, and gymnasium.

"Larrikinism" is the term applied to a certain tendency to mischievousness in the boys of the colony of Victoria. "The existence of the larrikin," says Mr. Elkington, one of the official Melbourne inspectors, "seems due to a variety of causes, in which the immediate influences of schooling do not play a strong part. The vicious examples, sensual indulgence, and relaxed discipline observed in many households; the correspondiug tendency in children to treat parents irreverently, the out-door life forced upon many young people by the scanty accommodation for the large family at home, have all borne a share in producing the larrikin: but I am strongly of opinion that the eight-hour system has much to answer for."

ARITHMETICAL SHARPS.—The following questions are the exciting topics of acrimonious discussion among the arithmetical "sharps" in the San Francisco school department: 1. How many times can twelve be subtracted from one hundred and forty-four? 2. Can twelve dollars be divided by two cents? Truly Bacon spoke wisely when he said "knowledge is power."

GRAMMATICAL SHARPS.—The disciples of Lindley Murray are agitated over the following: "He ate breakfast." What is *breakfast?* "Here he opened *wide* the door." What is *wide?* "Scrooge knew he was dead." What kind of a sentence?

CINCINNATI, O., March 24th, 1873.—The Committee on Course of Study and Text-books reported that they had examined McGuffey's series of Readers (now in use), and Harpers' United States Readers, and heard the statements of the representatives of each, and they were unanimous in the belief that a change of text-books would not be beneficial. Adopted unanimously.—*Commercial.*

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